

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 January 2002 (03.01.2002)

PCT

(10) International Publication Number  
**WO 02/01460 A2**

- (51) International Patent Classification<sup>7</sup>: **G06F 17/60**
- (21) International Application Number: PCT/US01/20030
- (22) International Filing Date: 21 June 2001 (21.06.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/214,089 23 June 2000 (23.06.2000) US
- (71) Applicant: **COMPUTER SCIENCES CORPORATION** [US/US]; 9500 Arboretum Blvd., Austin, TX 78759 (US).
- (72) Inventors: **LORENZ, Scott**; 11440 Morning Glory Trail, Austin, TX 78750 (US). **CHILDRRESS, Allen, B.**; 6509 FM 3180, Baytown, TX 77520 (US). **WOLFE, Brian**; 13545 Anarosa Loop, Austin, TX 78727 (US). **SPANN, Allison, W.**; 1235 Gazania Dr., Pflugerville, TX 78660 (US). **JONES, Gregory**; 220 Grandview Dr., Hudson, WI 54016 (US).
- (74) Agent: **CONLEY, ROSE & TAYON, P.C.**; Deluca, Mark, R., P.O. Box 398, Austin, TX 78767-0398 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:**  
— with declaration under Article 17(2)(a); without abstract; title not checked by the International Searching Authority
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



**WO 02/01460 A2**

(54) Title: SYSTEM AND METHOD FOR PROCESSING INSURANCE CLAIMS

(57) Abstract:

**TITLE: SYSTEM AND METHOD FOR PROCESSING INSURANCE CLAIMS****BACKGROUND OF THE INVENTION**1. Field of the Invention

The present invention generally relates to the field of insurance claims. More particularly, the present invention relates to a system and method for processing insurance claims using a graphical user interface.

2. Description of the Related Art

Insurance companies have been processing and settling claims associated with bodily injury for a long time. The task of evaluating, analyzing or estimating the amount of damage associated with one or more types of bodily injuries, especially trauma-induced bodily injuries, can be very complex. Complexity in the evaluation process often arises out of the fact that concurrent expertise in legal, medical and insurance fields is often required to arrive at a particular decision involving a bodily injury claim.

Several factors can affect the estimated amount of the claim associated with a bodily injury. Every accident is different and every injury is unique. Arriving at a customized evaluation of a bodily injury claim, which is unique for a specific accident, injury, etc. is desirable. Applying across-the-board standards may tend to result in an inequitable solution for one or more parties involved. External environmental factors, such as the experience level of a claims adjuster, record of accomplishment of the legal professionals, post-injury quality of life for the injured party, etc., all can affect the valuation of a claim.

During the past several years, many insurance companies have been using computer-based and knowledge-based claim-processing systems to process, evaluate, analyze and estimate thousands of claims in a fair and consistent manner. A knowledge-based claim-processing system includes an expert system which utilizes and builds a knowledge base to assist the user in decision making. It may allow the insurance companies to define new rules and/or use previously defined rules, in real-time. The business rules are generally written by industry experts to evaluate legal, medical, insurance conditions before arriving at a valuation of a claim.

There were several drawbacks with the earlier knowledge-based system. For example, the user interface (such as a graphical user interface, or GUI) lacked flexibility and was inefficient. In estimating a claim for bodily injury, the user typically had to enter inputs on a display screen and step through a series of displays or screens in a predefined sequence to complete the data input process. The knowledge-based prior art claim processing system would then utilize the user provided inputs, i.e., collect data from the user to generate a claim report. This reduced the user's flexibility and usability. For example, the user was required to enter the requested/required information for each display, before being permitted to proceed to the next display. In addition, the user interface used in the prior art would not permit the user to easily go back to edit data that was entered in a previous display or to go forward to another display. In order to go back to a desired previous display, the application would automatically exit, re-launch, and then go through all the previous displays in sequence to arrive at the desired previous display.

It is, therefore, desirable to develop a new graphical user interface to improve usability and flexibility of a knowledge-based claims processing system. It is desirable for the GUI to provide the user with a road map of all the steps involved with the data collection process. It is also desirable for the GUI to provide full control to the user to select any display screen to enter required data. Thus, the GUI should be of a flexible design to allow the

user to select display screens freely, based on user requirements. Furthermore, it is also desirable for the user to be able to edit inputs which were previously entered on previous display screens.

It is desirable to develop a new system and method for generating an insurance claim consultation report to improve usability and flexibility of a knowledge-based claims processing system. It is desirable for the insurance claim consultation report to provide the user with one or more lists of key contributing factors according to selection criteria, wherein the contributing factors affect the fair dollar value of a claim in a positive as well as negative manner. This improves the claim adjusters flexibility and report usability while negotiating a settlement with the claimant.

Several factors can affect the estimated amount of the claim associated with a bodily injury. Every accident is different and every injury is unique. Arriving at a customized evaluation of a bodily injury claim, which is unique for a specific accident, injury, etc. is desirable. Applying across-the-board standards may tend to result in an inequitable solution for one or more parties involved. External environmental factors, such as the experience level of a claims adjuster, record of accomplishment of the legal professionals, post-injury quality of life for the injured party, etc., all can affect the valuation of a claim.

There were several drawbacks with the prior art knowledge-based system. For example, the formulas used in the prior art, lacked flexibility. The formulas used in the calculation of trauma severity values were often hard-coded in the insurance claim processing software. Every time there was a new business requirement or a trauma severity calculation needed to be changed, it was often necessary to change the source code. In some cases the need to change the source code often resulted in delaying the incorporation of the updated and/or new formulas until the next system release date. Thus the insurance claim processing software was unable to adapt quickly to changing business conditions. This reduced the users' and therefore the insurance companies' flexibility to respond to changing business conditions in assessing bodily injury claims.

Very often, the user may have special or unique requirement, which may required that the standard formulas be modified or customized to meet a specific application. For example, different zones or geographic areas in the United States may have different monetary values associated with trauma severity for the same type of injury. The hard-coding method to compute formulas, used in the previous approaches, may not easily permit the customization of the formulas in a cost and time effective manner.

It is, therefore, desirable to develop a new system and method for externalization of formulas for assessing bodily injury general damages. It is desirable for the formulas to be easily updateable in response to changing external business conditions. It is also desirable for the formulas to be customizable to meet specific user requirements. Thus, the new system and method for externalization of formulas should be of a flexible design, to meet unique user requirements.

There were several drawbacks with the prior art knowledge-based system. For example, the business rules used in the prior art often lacked flexibility. The business rules were often hard-coded in the insurance claim processing software. Every time there was a new business requirement, it was necessary to change the source code. In some cases, this inflexibility resulted in delaying the incorporation of the new business rules until the next system release date. Thus the insurance claim processing software was unable to adapt quickly to changing business conditions. This reduced the users' and therefore the insurance companies' flexibility to respond to changing business conditions in assessing bodily injury claims.

Very often, the user may have special or unique requirement, which may need the standard business rules to be modified (i.e., customized) to meet a specific application. The hard-coding method used in the prior art would not easily permit the customization of the business rules in a cost and time effective manner.

It is, therefore, desirable to develop a new system and method for externalization of rules for assessing  
5 bodily injury general damages. It is desirable for the rules to be easily updateable based on external business conditions. It is also desirable for the rules to be customizable to meet specific user requirements. Thus, the new system and method for externalization of rules should be of a flexible design, to meet user requirements.

There were several drawbacks with the earlier computer-based system. For example, the messages that were generated while processing the insurance claim, used in the prior art, lacked flexibility and was inefficient.  
10 The prior art used hard-coded messages. That is, the actual messages, including the message text, were part of the application program source code. Messages were generated specific to the context of the application program. Thus, many messages which may have had the same text or message content had to be programmed and stored separately and could not be re-used. This increased memory requirements and decreased system performance. In addition, it was difficult to modify and install the application software for use in other countries, which used a  
15 language other than, for example, US English. Maintenance of the messages hard-coded in the application program software was also time consuming and costly. This reduced the user's flexibility and usability.

It is, therefore, desirable to develop a new system and method for displaying messages while processing insurance claims using a messages table. It is desirable for the display of messages, including the message text, to be easily customizable for installation in a specific language and/or country. It is also desirable for the messages  
20 to be re-used throughout the claims processing application software. Furthermore, it is desirable to be able to store the messages in a repository, external to the application program. Thus, the messages display system and method should be of a flexible design to allow the user to freely select message text based on user requirements.

In knowledge-based systems, to estimate a claim for bodily injury, the user may enter inputs on a display screen and step through a series of displays or screens to complete the data input process. The knowledge-based  
25 claim processing system may then utilize the user-provided inputs to generate a claim report.

The complexity of analyzing or estimating the amount of damage associated with one or more types of bodily injuries may create difficulties to a user of the knowledge-based systems. Help information in the form of documents such as manuals and guidebooks may be provided by the knowledge-based systems to help the user in completing the data input process. The help information may be provided in printed form or, in some systems, in  
30 electronic form. The volume and complexity of the supplied help information may make it difficult for the user to locate a portion or portions of the information pertinent to a current step or screen that the user is working on in the data input process.

It may therefore be desirable to develop an electronic, on-line help system to provide context-sensitive help for the current step or screen that the user is working on in a knowledge-based system. It may also be  
35 desirable to provide a method for the user to interactively search the on-line help system for one or more terms relevant to the processing of a current claim. It may also be desirable to calculate a relevance of items in the on-line help system and to rank the items, when displayed, in an order of relevance. It may be desirable to display the context-sensitive help or occurrences of search terms to a portion of the display screen for the current step. It may also be desirable to provide an interface to the user to allow the user to interactively hide and/or show  
40 portions of the display screen containing context-sensitive help or search information.



In the past, such knowledge-based systems for estimating the value of an insurance claim have been limited to traditional computing architectures such as mainframes and stand-alone personal computers. Therefore, it was necessary to install and maintain client software as well as server software for these knowledge-based systems in particular physical locations. With the growth of the Internet, however, many personal computers may now be granted client access to servers distributed all over the world.

It may therefore be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed over the Internet. It may also be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed through a web browser. It may be desirable to develop new business models for providing insurance companies with access to a web-based or internet-based insurance claim processing server.

In knowledge-based systems, to estimate a claim for bodily injury, the user may enter inputs on a display screen and step through a series of displays or screens to complete the data input process. This process may be referred to as a consultation session. The knowledge-based claim processing system may then utilize the user-provided inputs to generate a consultation report. The consultation report may include, for example, an estimate of a value of an insurance claim.

In the past, such knowledge-based systems for estimating the value of an insurance claim have been limited to traditional computing architectures such as mainframes and stand-alone personal computers. Therefore, it was necessary to install and maintain client software as well as server software for these knowledge-based systems in particular physical locations. With the growth of the Internet, however, many personal computers may now be granted client access to servers distributed all over the world.

It may therefore be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed over the Internet. It may also be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed through a web browser. It may be desirable to develop new business models for providing insurance companies with access to a web-based or internet-based insurance claim processing server.

In knowledge-based systems, to estimate a claim for bodily injury, the user may enter inputs on a display screen and step through a series of displays or screens to complete the data input process. This process may be referred to as a consultation session. The knowledge-based claim processing system may then utilize the user-provided inputs to generate a consultation report. The consultation report may include, for example, an estimate of a value of an insurance claim.

In the past, such knowledge-based systems for estimating the value of an insurance claim have been limited to traditional computing architectures such as mainframes and stand-alone personal computers. Therefore, it was necessary to install and maintain client software as well as server software for these knowledge-based systems in particular physical locations. With the growth of the Internet, however, many personal computers may now be granted client access to servers distributed all over the world.

It may therefore be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed over the Internet. It may also be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed through a web browser. It may be desirable to develop new business models for providing insurance companies with access to a web-based or internet-based insurance claim processing server.

In the past, such knowledge-based systems for estimating the value of an insurance claim have been limited to traditional computing architectures such as mainframes and stand-alone personal computers. Therefore, it was necessary to install and maintain client software as well as server software for these knowledge-based systems in particular physical locations. With the growth of the Internet, however, many personal computers may now be granted client access to servers distributed all over the world.

It may therefore be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed over the Internet. It may also be desirable to develop a knowledge-based system for insurance claim processing which is configured to be accessed through a web browser. It may be desirable to develop new business models for providing insurance companies with access to a web-based or internet-based insurance claim processing server.

#### SUMMARY OF THE INVENTION

The present invention provides various embodiments of a system and method for processing and estimating a value of an insurance claim using a table of contents. In one embodiment, the processing of the insurance claim may be initiated by initiating a first step, wherein the processing of the insurance claim includes a plurality of steps. The steps may include screens displayed on a display device coupled to a computer system. The insurance claim may include a bodily injury claim, and processing the insurance claim to estimate the value of the insurance claim may include processing the bodily injury claim to estimate a bodily injury general damages value. The steps may include steps for entry of information relevant to the estimate of the value of the insurance claim. The information may include, for example, bodily injury treatment information and/or bodily injury damages information.

One or more of the steps in the processing of the insurance claim may be proceeded through to arrive at an intermediary step. As used herein, the intermediary step is any step between the first and final steps in the plurality of steps of processing the insurance claim. Proceeding through the one or more of the steps in the processing of the insurance claim may include entering information relevant to the estimate of the value of the insurance claim in the one or more of the steps. The entered information may be stored in a memory. The intermediary step may then be displayed. A table of contents may be displayed upon the entry of an appropriate command by the user, wherein the table of contents includes an ordered list of the steps associated with the processing of the insurance claim, and wherein the ordered list of steps comprises the first step, the intermediary step, and any steps in between the first step and the intermediary step. The ordered list of steps may be dynamically modifiable in response to the entry of information in a step. In other words, steps may be added to or deleted from said dynamically modifiable ordered list of steps in response to the entry of information. The user may be permitted to select one of the steps from the ordered list of steps associated with the processing of the insurance claim in the table of contents. The selected step may then be displayed in response to the user selecting the selected step in the table of contents. In one embodiment, the entered information in the selected step may be modified after selecting the step in the table of contents. The modified information may be stored.

After displaying the selected step, the intermediary step may be redisplayed upon entry of an appropriate command by the user. In one embodiment, in other words, the user may go back to the previously displayed step, either through the table of contents or through entry of a suitable "back" command. The processing of the insurance claim may be continued after redisplaying the intermediary step by permitting the user to enter additional information relevant to the estimate of the value of the insurance claim.

The ordered list of steps in the table of contents may include a final step. In one embodiment, the final step may be selected at any time from the table of contents. The final step may include a consultation report concerning an estimate of the value of the insurance claim. The consultation report may include information related to the estimate of the value of the insurance claim, wherein the estimate may be calculated based on information entered in the first step and in any steps in between the first step and the intermediary step.

In one embodiment, all or substantially all of the steps associated with using the table of contents may be executed within a single session of an application program executing on a computer system. Therefore, the user of the system need not exit the system and restart from the beginning in order to go back to a previously encountered step.

The present invention also provides various embodiments of a system and method for identifying one or more contributing factors relevant to an estimate of a value of an insurance claim. In one embodiment, one or more insurance codes which are relevant to the value of the insurance claim may be specified in an insurance claims processing program executable on a computer system. Each insurance code may be considered a contributing factor to the estimated value of the insurance claim. These insurance codes may be entered by a user during a consultation session in which a claimant reports his or her injuries and/or treatments for a particular insurance claim. In specifying the one or more insurance codes, a claim number for the insurance claim may be specified, and the one or more insurance codes may be associated with the claim number. The insurance codes may include one or more injury codes, wherein each injury code specifies a bodily injury incurred by the claimant. The insurance codes may include one or more treatment codes, wherein each treatment code specifies a treatment for at least one of the bodily injuries incurred by the claimant.

One or more contributing factor values may be determined. Each of the contributing factor values corresponds to one of the insurance codes, and each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim. The insurance claim may include a bodily injury claim, and the contributing factor values may be relevant to an estimate of a bodily injury general damages value of the bodily injury claim. Each of the one or more contributing factor values may include a numeric value. In one embodiment, determining the one or more contributing factor values may include calculating the one or more contributing factor values as a function of one or more business rules. In other words, a rules engine or other expert system may be configured to calculate dynamically the amount that each insurance code adds to or subtracts from the estimate of the value of the insurance claim. This amount contributed by one insurance code may be dependent on the amounts contributed by other specified insurance codes. In one embodiment, the expert system may be developed using the PLATINUM Aion™ rule-based development environment available from Computer Associates International, Inc.

Each of the one or more insurance codes and the corresponding contributing factor values may be stored in a table. The table may include one or more rows, wherein each row of the table includes one of the insurance codes and the corresponding contributing factor value. In one embodiment, the table may be implemented as a

table in a relational database. In one embodiment, the table may be implemented in accordance with object-oriented techniques of software design.

The table may be sorted by the contributing factor values to generate a sorted table of contributing factor values and corresponding insurance codes. The table may be sorted by contributing factor value in ascending or  
5 descending order.

A set of contributing factors from the sorted table which meet one or more selection criteria may be identified and reported. The set of contributing factors may be included in a consultation report which may be printed and/or displayed on a display device. The selection criteria may include a selection of the largest positive of the one or more contributing factor values up to a certain quantity, such as five. Therefore, identifying and  
10 reporting the set of contributing factors from the sorted table may include identifying and reporting a sorted set of the largest contributing factor values up to the certain quantity. In one embodiment, each contributing factor value in the sorted set of the largest positive contributing factor values adds to the estimate of the value of the insurance claim. The selection criteria may include the largest negative of the one or more contributing factor values up to a certain quantity, such as five. Therefore, identifying and reporting the set of contributing factors  
15 from the sorted table may include identifying and reporting a sorted set of the largest negative contributing factor values up to the certain quantity. Each contributing factor value in the sorted set of the largest negative contributing factor values subtracts from the estimate of the value of the insurance claim.

The present invention provides various embodiments of a system and method for externalization of formulas to assess bodily injury general damages. In one embodiment, an insurance company may use an expert  
20 system to develop a knowledge base in the form of business rules and formulas to process insurance claims. In one embodiment, the formulas may be invoked by the business rules to calculate trauma severity values associated with a bodily injury insurance claim. A rules engine may execute the business rules and formulas.

The task of creation and maintenance of the business formulas, used by the business rules in the assessment of claims, may be automated by the externalization of formulas. In one embodiment, the database,  
25 which is external to the rules engine, may store all business rules, formulas, program instructions, data, tables, objects, etc. associated with the processing of insurance claims. In one embodiment, the database may be an object oriented or a relational database. In one embodiment, the database may include a plurality of knowledge bases often storing knowledge data in the form of tables. The data stored in the knowledge bases may also be in the form of objects. The user may create a formulas data table, which is an embodiment of a knowledge base and  
30 which includes data necessary to transform the formula data to formulas. The entire set of formulas created to process insurance claims may be classified into a plurality of formula types. In one embodiment, a formula type may include a mathematical function operating on one or more inputs to compute one or more outputs. In one embodiment, new formula types may be created and added to existing formula types to customize the formulas.

The transformation program, in one embodiment, reads each row of the formula data table and creates a  
35 static instance of an object in the formula class in a separate knowledge base named formulas. Business rules may invoke the static instance of formula using the calculate method. In one embodiment, the calculate method gathers all of the static instances with a specified FormulaID along with a sequence number. The calculate method then interprets the operations and controls how the formula is executed. The resulting output value may be used to calculate the trauma severity value.

By changing or modifying the data stored in the formulas data table and using the transformation method it may be possible to update the business formulas. Changing or adding new entries to the formulas types may customize the formulas.

The present invention provides various embodiments of a system and method for externalization of rules to assess bodily injury general damages. In one embodiment, an insurance company may use an expert system to develop a knowledge base in the form of business rules to process insurance claims. A rules engine operable to execute the business rules may assist an insurance claims adjuster in assessing damages associated with bodily injury claims.

The task of creation and maintenance of the business rules, used in the assessment of claims, may be automated by the externalization of rules. In one embodiment, the database, which is external to the rules engine, may store all business rules, program instructions, data, tables, objects, etc. associated with the processing of insurance claims. In one embodiment, the database may be an object oriented or a relational database. In one embodiment, the database may include a plurality of knowledge bases often stored in the form of tables. The user may create a rules data table, which is an embodiment of a knowledge base and which includes data necessary to transform the data to business rules, based on a rule syntax structure specified in the template table. In one embodiment, a rule style or a rule syntax structure includes a premise and one or more resulting actions. The entire set of business rules created to process insurance claims may be classified into a plurality of rule styles. In one embodiment, new rule styles may be created and added to existing rule styles to customize the business rules.

The transformation method, in one embodiment, orchestrates the combining of the data from the rules data table and the rule syntax structure specified in the template table and line text table. Each row of the rules data table may be read at a time. Data stored in each column of the rules data table may be used to transform or create the business rules. In one embodiment, entries for rules style may be used as a key to read a matching record in the template table. The matching record in the template table may specify the specific rule syntax structure. The new business rule may be saved in an associated knowledge base.

By changing or modifying the data stored in the rules data table and using the transformation method it may be possible to update the business rules. Changing or adding new entries to the rules style may customize the business rules.

The present invention provides various embodiments of an improved method and system to display messages, while processing insurance claims, using a messages table. The messages associated with the processing of insurance claims are primarily used to obtain inputs from the user of the claims processing computer system. Messages, which are typically displayed on a display screen, may include questions, answers, errors, warnings, and other text used with interactive claims processing.

As a part of the initial configuration or setup process, the user defines the entries in the messages table and stores them in a database. The messages are stored as message codes along with a corresponding message text in a messages table. The database, which includes the messages table is the repository and the lookup system for the message codes and the corresponding message texts. Each message code has a corresponding customizable message text, which may be specified at installation time.

The application program may request a display of a specific message by providing its message code. In one embodiment, the GetMessageText method of the Message object, may be invoked, along with providing the values for MsgSectionIn and MsgCodeIn arguments associated with the GetMessageText method. The GetMessageText method, on execution, accesses the messages table and obtains the corresponding message text

which is then passed on to the requesting application program. The application program, thus, remains unaffected to changes in corresponding customizable message texts.

The present invention provides various embodiments of a mechanism for providing context-sensitive help and the ability to interactively search a help database in insurance claims processing systems. One or more index tables may be provided for locating terms and codes for context-sensitive help and for interactively searching for terms in the help database. Each entry in the one or more index tables may represent an occurrence of a term or code in a document included in the help database for the insurance claims processing system. Examples of documents that may be included in the help database for the insurance claims processing system include, but are not limited to: medical journals, textbooks and/or manuals, insurance claims processing manuals or guidebooks, medical glossaries and/or dictionaries, and documents including context sensitive help entries for the insurance claims processing steps, and elements of the steps, in the insurance claims processing system.

An entry in the index table may include an object ID. The object ID may indicate a unique entry in a help information table in the help database. An entry in the index table may also include a term field. In one embodiment, a term field may include a term located in the one or more documents in the help database, or alternatively a term field may include a code representing a step or an element in a step in the insurance claims processing system. As used herein, a "term" may include one or more words, abbreviations, numerical values, or other types of alphanumeric strings that may appear in documents in an insurance claims processing help database. An entry in the index table may also include a Soundex field for locating words that are misspelled. In one embodiment, the entries in the index table may include a relevance value for the occurrence of the term in the help database. As used herein, a relevance value may be defined as an estimated measure of the significance of the occurrence of a term to the text object (header or text section) in which the occurrence is located.

In one embodiment, the relevance values for the entries in the index table may be calculated and stored in the index table prior to a user accessing the help database. In another embodiment, the relevance value for an entry in the index table may be calculated dynamically when the entry is identified as an occurrence of a search term or of a step or step element code in context-sensitive help. In one embodiment, relevance values for the entries in the index table may be calculated using the position of the term in the text object (header or text section), the number of words in the term, the number of words in the text object, and the type of text object for the entry (header or text section?). In one embodiment, occurrences in headers may be considered generally more relevant than occurrences in text sections, and therefore a different mechanism may be used to calculate the relevance of occurrences in headers than the mechanism used to calculate the relevance of occurrences in text sections.

In one embodiment, the help information database may include one or more header tables and one or more text tables. A header table may include a plurality of records, also referred to as entries, with one entry for each header element from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. An index table may include a plurality of entries, with one entry for each text section from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. In one embodiment, the fields may be substantially similar to the fields in embodiments of the header table.

An entry in a header or text table may include an object identifier (object ID). In one embodiment, the object ID for the entry may be unique in the help database. In one embodiment, the object ID may include information that may be used to identify the document including the entry, and the location in the document of the

entry. In one embodiment, an entry may include the object identifier of the parent entry for the entry. An entry in a header or text table may also include fields with information on the location in the document of the entry. An entry in a header or text table may also include alphanumeric text from the document. When the entry is located during context sensitive help or a search, the alphanumeric text may be read from the entry and displayed on the display screen for a user to view. Alternatively, the entry may not store the actual text, but may instead include information for locating the text for the entry in the document. In this case, when the entry is located, the actual text for the entry may be read from the document itself and displayed for the user.

A user may initiate processing of an insurance claim in the insurance claims processing system. The insurance claims processing may begin at a first processing step, and may continue through a number of processing steps until the insurance claim processing is complete. A next processing step may be determined by user input at a current processing step, or alternatively may be predetermined (i.e. step B always follows step A). In one embodiment, a processing step may be divided into one or more screens or pages, wherein one screen or page at a time is displayed on display screen.

The insurance claims processing system may enter a processing step and display a page for the processing step. In one embodiment, the context-sensitive help for the step may be automatically invoked when entering the step. Alternatively, the user may interactively invoke context-sensitive help once the page is displayed. Context-sensitive help for each processing step may be unique, although some content may appear in the context-sensitive help for two or more processing steps. Context-sensitive help may also be unique for each of the one or more pages within a processing step. The page for the processing step may be displayed with the context-sensitive help for the page. In one embodiment, a display page may be divided into two or more panes, the context-sensitive help may be displayed in one or more panes on the page, and the processing step contents may appear in one or more panes on the page.

In one embodiment, each step or each page in a step in the insurance claims processing system may have a unique code, which may be referred to as a page ID. A page may also include one or more step elements that have associated codes. In one embodiment, step elements may include interface items that a user of the system interacts with in performing the step. In one embodiment, the step elements on the page may include system-supplied "answers" to questions posed to the user during the claims processing. In one embodiment, the step elements may include lists of injury codes selectable by the user. In one embodiment, the step elements may include lists of treatments for injuries selectable by the user.

The insurance claims processing system may search one or more index tables for entries including the page ID. The index table may also be searched for entries including the codes from one or more elements of the page. The search may result in the insurance claims processing system locating one or more entries in the one or more index tables. In one embodiment, there will be at least one entry located for the page ID in the one or more index tables. In one embodiment, if elements of the page have an associated code, there will be at least one entry located for each code in the one or more index tables. In one embodiment, each entry in the one or more index tables may indicate an occurrence in the one or more documents included in the help database for the insurance claims processing system of the page ID, code, or term included in the index table entry.

The insurance claims processing system may then locate entries in the one or more help tables using information from the entries located in the one or more index tables for the page ID and any elements of the page. The one or more help tables may be searched for occurrences of the object ID from each located entry in the index table.

In one embodiment, the insurance claims processing system may then rank the located help table entries by relevance value. The located help table entries may be ranked from highest relevance to lowest relevance. In one embodiment, the located help table entries may be listed without being ranked by relevance. In one embodiment, any entries found for a page code may be displayed at the top of the list regardless of the relevance ranking of the entry. Entries for other codes in the page may then be ranked below the page code entry or entries in order of relevance. In one embodiment, when there is more than one term being searched for, located entries may be first ranked on the number of search terms the entries include. Entries that include more search terms may be ranked higher than entries with fewer search terms. The entries within the ranking categories may then be ranked by relevance within the category.

The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

The insurance claims processing system may also display information describing the location of the displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

In one embodiment, a search interface may be provided to the user of the insurance claims processing system. The user may enter in the search interface one or more terms to be searched for in the help database for the insurance claims processing system. The user may then initiate the search for the one or more terms. The insurance claims processing system may then search the one or more index tables for entries including at least one of the one or more terms. The insurance claims processing system may locate one or more entries in the one or more index tables that include at least one of the one or more terms. The located entries in the index table may be used to locate help entries in the one or more help tables that include at least one of the one or more terms. The one or more help tables may be searched for occurrences of the object ID from each of the located entries.

The located help table entries may be ranked by relevance. The located help table entries may be ranked from highest relevance to lowest relevance. In one embodiment, when there is more than one term being searched for, located entries may be first ranked on the number of search terms the entries include. Entries that include more search terms may be ranked higher than entries with fewer search terms. The entries within the ranking categories may then be ranked by relevance within the category. Thus, entries with lower relevance, but more search terms, may appear higher in the overall ranking than entries with higher relevance, but fewer search terms.

The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.



The insurance claims processing system may also display information describing the location of the displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

The present invention provides various embodiments of a mechanism for providing context-sensitive help and the ability to interactively search a help database in insurance claims processing systems. One or more index tables may be provided for locating terms and codes for context-sensitive help and for interactively searching for terms in the help database. Each entry in the one or more index tables may represent an occurrence of a term or code in a document included in the help database for the insurance claims processing system. Examples of documents that may be included in the help database for the insurance claims processing system include, but are not limited to: medical journals, textbooks and/or manuals, insurance claims processing manuals or guidebooks, medical glossaries and/or dictionaries, and documents including context sensitive help entries for the insurance claims processing steps, and elements of the steps, in the insurance claims processing system.

An entry in the index table may include an object ID. The object ID may indicate a unique entry in a help information table in the help database. An entry in the index table may also include a term field. In one embodiment, a term field may include a term located in the one or more documents in the help database, or alternatively a term field may include a code representing a step or an element in a step in the insurance claims processing system. As used herein, a "term" may include one or more words, abbreviations, numerical values, or other types of alphanumeric strings that may appear in documents in an insurance claims processing help database. An entry in the index table may also include a Soundex field for locating words that are misspelled. In one embodiment, the entries in the index table may include a relevance value for the occurrence of the term in the help database. As used herein, the relevance of an occurrence of a term may be defined as the relevance of the term to the text object (header or text section) in which the occurrence is located.

In one embodiment, the help database may include one or more header tables and one or more text tables. A header table may include a plurality of records, also referred to as entries, with one entry for each header element from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. An index table may include a plurality of entries, with one entry for each text section from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. In one embodiment, the fields may be substantially similar to the fields in embodiments of the header table.

An entry in a header or text table may include an object identifier (object ID). In one embodiment, the object ID for the entry may be unique in the help database. In one embodiment, the object ID may include information that may be used to identify the document including the entry, and the location in the document of the entry. In one embodiment, an entry may include the object identifier of the parent entry for the entry. An entry in a header or text table may also include fields with information on the location in the document of the entry. An entry in a header or text table may also include alphanumeric text from the document. When the entry is located during context sensitive help or a search, the alphanumeric text may be read from the entry and displayed on the display screen for a user to view. Alternatively, the entry may not store the actual text, but may instead include information for locating the text for the entry in the document. In this case, when the entry is located, the actual text for the entry may be read from the document itself and displayed for the user.

A user may initiate processing of an insurance claim in the insurance claims processing system. The insurance claims processing may begin at a first processing step, and may continue through a number of

processing steps until the insurance claim processing is complete. A next processing step may be determined by user input at a current processing step, or alternatively may be predetermined (i.e. step B always follows step A). In one embodiment, a processing step may be divided into one or more screens or pages, wherein one screen or page at a time is displayed on display screen.

5           The insurance claims processing system may enter a processing step and display a page for the processing step. In one embodiment, the context-sensitive help for the step may be automatically invoked when entering the step. Alternatively, the user may interactively invoke context-sensitive help once the page is displayed. Context-sensitive help for each processing step may be unique, although some content may appear in the context-sensitive help for two or more processing steps. Context-sensitive help may also be unique for each of  
10   the one or more pages within a processing step. The page for the processing step may be displayed with the context-sensitive help for the page. In one embodiment, a display page may be divided into two or more panes, the context-sensitive help may be displayed in one or more panes on the page, and the processing step contents may appear in one or more panes on the page.

15           In one embodiment, each step or each page in a step in the insurance claims processing system may have a unique code, which may be referred to as a page ID. A page may also include one or more step elements that have associated codes. In one embodiment, step elements may include interface items that a user of the system interacts with in performing the step. In one embodiment, the step elements on the page may include system-supplied "answers" to questions posed to the user during the claims processing. In one embodiment, the step elements may include lists of injury codes selectable by the user. In one embodiment, the step elements may  
20   include lists of treatments for injuries selectable by the user.

          The insurance claims processing system may search one or more index tables for entries including the page ID. The index table may also be searched for entries including the codes from one or more elements of the page. The search may result in the insurance claims processing system locating one or more entries in the one or more index tables. In one embodiment, there will be at least one entry located for the page ID in the one or more  
25   index tables. In one embodiment, if elements of the page have an associated code, there will be at least one entry located for each code in the one or more index tables. In one embodiment, each entry in the one or more index tables may indicate an occurrence in the one or more documents included in the help database for the insurance claims processing system of the page ID, code, or term included in the index table entry.

30           The insurance claims processing system may then locate entries in the one or more help tables using information from the entries located in the one or more index tables for the page ID and any elements of the page. The one or more help tables may be searched for occurrences of the object ID from each located entry in the index table.

          In one embodiment, the insurance claims processing system may then rank the located help table entries by relevance value. The located help table entries may be ranked from highest relevance to lowest relevance. In  
35   one embodiment, the located help table entries may be listed without being ranked by relevance. In one embodiment, any entries found for a page code may be displayed at the top of the list regardless of the relevance ranking of the entry. Entries for other codes in the page may then be ranked below the page code entry or entries in order of relevance.

40           The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table

entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

5           The insurance claims processing system may also display information describing the location of the displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

10           In one embodiment, a search interface may be provided to the user of the insurance claims processing system. The user may enter in the search interface one or more terms to be searched for in the help database for the insurance claims processing system. The user may then initiate the search for the one or more terms. The insurance claims processing system may then search the one or more index tables for entries including at least one of the one or more terms. The insurance claims processing system may locate one or more entries in the one or more index tables that include at least one of the one or more terms. The located entries in the index table may be used to locate help entries in the one or more help tables that include at least one of the one or more terms. The one or more help tables may be searched for occurrences of the object ID from each of the located entries.

15           The located help table entries may be ranked by relevance. The located help table entries may be ranked from highest relevance to lowest relevance. In one embodiment, when there are more than one terms being searched for, located entries may be first ranked on the number of search terms the entries include. Entries that include more search terms may be ranked higher than entries with fewer search terms. The entries within the ranking categories may then be ranked by relevance within the category. Thus, entries with lower relevance, but more search terms, may appear higher in the overall ranking than entries with higher relevance, but fewer search terms.

20           The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

25           The insurance claims processing system may also display information describing the location of the displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

30           The present invention provides various embodiments of a mechanism for providing context-sensitive help and the ability to interactively search a help database in insurance claims processing systems. One or more index tables may be provided for locating terms and codes for context-sensitive help and for interactively searching for terms in the help database. Each entry in the one or more index tables may represent an occurrence of a term or code in a document included in the help database for the insurance claims processing system. Examples of documents that may be included in the help database for the insurance claims processing system include, but are not limited to: medical journals, textbooks and/or manuals, insurance claims processing manuals or guidebooks, medical glossaries and/or dictionaries, and documents including context sensitive help entries for the insurance claims processing steps, and elements of the steps, in the insurance claims processing system.

An entry in the index table may include an object ID. The object ID may indicate a unique entry in a help information table in the help database. An entry in the index table may also include a term field. In one embodiment, a term field may include a term located in the one or more documents in the help database, or alternatively a term field may include a code representing a step or an element in a step in the insurance claims processing system. As used herein, a "term" may include one or more words, abbreviations, numerical values, or other types of alphanumeric strings that may appear in documents in an insurance claims processing help database. An entry in the index table may also include a Soundex field for locating words that are misspelled. In one embodiment, the entries in the index table may include a relevance value for the occurrence of the term in the help database. As used herein, the relevance of an occurrence of a term may be defined as the relevance of the term to the text object (header or text section) in which the occurrence is located.

In one embodiment, the help information database may include one or more header tables and one or more text tables. A header table may include a plurality of records, also referred to as entries, with one entry for each header element from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. An index table may include a plurality of entries, with one entry for each text section from the one or more documents to be included in the help database for the insurance claims processing system. Each entry may comprise a plurality of fields or elements. In one embodiment, the fields may be substantially similar to the fields in embodiments of the header table.

An entry in a header or text table may include an object identifier (object ID). In one embodiment, the object ID for the entry may be unique in the help database. In one embodiment, the object ID may include information that may be used to identify the document including the entry, and the location in the document of the entry. In one embodiment, an entry may include the object identifier of the parent entry for the entry. An entry in a header or text table may also include fields with information on the location in the document of the entry. An entry in a header or text table may also include alphanumeric text from the document. When the entry is located during context sensitive help or a search, the alphanumeric text may be read from the entry and displayed on the display screen for a user to view. Alternatively, the entry may not store the actual text, but may instead include information for locating the text for the entry in the document. In this case, when the entry is located, the actual text for the entry may be read from the document itself and displayed for the user.

A user may initiate processing of an insurance claim in the insurance claims processing system. The insurance claims processing may begin at a first processing step, and may continue through a number of processing steps until the insurance claim processing is complete. A next processing step may be determined by user input at a current processing step, or alternatively may be predetermined (i.e. step B always follows step A). In one embodiment, a processing step may be divided into one or more screens or pages, wherein one screen or page at a time is displayed on display screen.

The insurance claims processing system may enter a processing step and display a page for the processing step. In one embodiment, the context-sensitive help for the step may be automatically invoked when entering the step. Alternatively, the user may interactively invoke context-sensitive help once the page is displayed. Context-sensitive help for each processing step may be unique, although some content may appear in the context-sensitive help for two or more processing steps. Context-sensitive help may also be unique for each of the one or more pages within a processing step. The page for the processing step may be displayed with the context-sensitive help for the page. In one embodiment, a display page may be divided into two or more panes,

the context-sensitive help may be displayed in one or more panes on the page, and the processing step contents may appear in one or more panes on the page.

In one embodiment, each step or each page in a step in the insurance claims processing system may have a unique code, which may be referred to as a page ID. A page may also include one or more step elements that have associated codes. In one embodiment, step elements may include interface items that a user of the system interacts with in performing the step. In one embodiment, the step elements on the page may include system-supplied "answers" to questions posed to the user during the claims processing. In one embodiment, the step elements may include lists of injury codes selectable by the user. In one embodiment, the step elements may include lists of treatments for injuries selectable by the user.

The insurance claims processing system may search one or more index tables for entries including the page ID. The index table may also be searched for entries including the codes from one or more elements of the page. The search may result in the insurance claims processing system locating one or more entries in the one or more index tables. In one embodiment, there will be at least one entry located for the page ID in the one or more index tables. In one embodiment, if elements of the page have an associated code, there will be at least one entry located for each code in the one or more index tables. In one embodiment, each entry in the one or more index tables may indicate an occurrence in the one or more documents included in the help database for the insurance claims processing system of the page ID, code, or term included in the index table entry.

The insurance claims processing system may then locate entries in the one or more help tables using information from the entries located in the one or more index tables for the page ID and any elements of the page. The one or more help tables may be searched for occurrences of the object ID from each located entry in the index table.

In one embodiment, the insurance claims processing system may then rank the located help table entries by relevance value. The located help table entries may be ranked from highest relevance to lowest relevance. In one embodiment, the located help table entries may be listed without being ranked by relevance. In one embodiment, any entries found for a page code may be displayed at the top of the list regardless of the relevance ranking of the entry. Entries for other codes in the page may then be ranked below the page code entry or entries in order of relevance.

The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

The insurance claims processing system may also display information describing the location of the displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

In one embodiment, a search interface may be provided to the user of the insurance claims processing system. The user may enter in the search interface one or more terms to be searched for in the help database for the insurance claims processing system. The user may then initiate the search for the one or more terms. The insurance claims processing system may then search the one or more index tables for entries including at least one

of the one or more terms. The insurance claims processing system may locate one or more entries in the one or more index tables that include at least one of the one or more terms. The located entries in the index table may be used to locate help entries in the one or more help tables that include at least one of the one or more terms. The one or more help tables may be searched for occurrences of the object ID from each of the located entries.

5           The located help table entries may be ranked by relevance. The located help table entries may be ranked from highest relevance to lowest relevance. In one embodiment, when there are more than one terms being searched for, located entries may be first ranked on the number of search terms the entries include. Entries that include more search terms may be ranked higher than entries with fewer search terms. The entries within the ranking categories may then be ranked by relevance within the category. Thus, entries with lower relevance, but  
10           more search terms, may appear higher in the overall ranking than entries with higher relevance, but fewer search terms.

          The insurance claims processing system may then display information from the located help table entries. In one embodiment, the entries may be displayed in the order of relevance of the entries. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table  
15           entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

          The insurance claims processing system may also display information describing the location of the  
20           displayed portions of text in the one or more documents. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents.

          An interface item or items may be provided to the user for hiding or showing one or more panes displaying portions of the search results or context-sensitive help. In one embodiment, the interface items may be items displayed graphically on the screen (for example, icons) and may be selectable using input/output devices  
25           such as a mouse, joystick, or arrow keys on a keyboard. Interface items may also be keyboard selections such as function keys or key combinations.

          Various embodiments of a web-enabled method and system for processing insurance claims are described. The insurance claim processing system may include a rules engine and a web server which is coupled to the rules engine. The rules engine may be configured to generate a plurality of insurance claim assessment  
30           questions. In one embodiment, the insurance claim assessment questions may include bodily injury claim assessment questions. The web server may be configured to generate a plurality of web pages comprising the insurance claim assessment questions. The insurance claim processing system may further include a web browser which is configured to receive the plurality of web pages comprising the insurance claim assessment questions from the web server. The web browser may then be configured to display the plurality of web pages comprising  
35           the insurance claim assessment questions. The web browser may then be configured to receive insurance claim assessment data entered by a user in response to the insurance claim assessment questions during an insurance claim consultation session and send the insurance claim assessment data to the web server. In one embodiment, the web server is further configured to receive the insurance claim assessment data from the web browser and send the insurance claim assessment data to the rules engine.

40           The rules engine may be further configured to estimate a value of an insurance claim as a function of the insurance claim assessment data. The insurance claim may include a bodily injury insurance claim, and the

insurance claim assessment data may include one or more bodily injuries and one or more treatments. The rules engine may be further configured to send the estimate of the value of the insurance claim to the web browser through the web server. The web browser may be further configured to display the estimate of the value of the insurance claim received from the rules engine through the web server.

5 The insurance claim processing system may further include adapter software which is configured to enable communication between the rules engine and the web server. The adapter software may include one or more component interfaces such as COM interfaces. The adapter software may include one or more dynamic link libraries.

10 In one embodiment, the web server and web browser are located on separate computer systems which are communicatively coupled through a network. In another embodiment, the web server and web browser may be located and executed on a single computer system.

15 In one embodiment, the insurance claim processing system may further include a plurality of web browsers corresponding respectively to a plurality of users. Each of the web browsers may be configured to receive one or more of the plurality of web pages comprising the insurance claim assessment questions from the web server, display the received web pages comprising the insurance claim assessment questions, receive insurance claim assessment data entered by one of a plurality of users in response to the insurance claim assessment questions during one of a plurality of insurance claim consultation sessions, and send the insurance claim assessment data to the web server.

20 In one embodiment, a method for developing a web-enabled insurance claims processing system may include providing a rules engine. The rules engine maybe configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user in response to insurance claim assessment questions. The method may further include providing a web server which is configured to generate a plurality of web pages which are viewable by a web browser. The method may further include wrapping the rules engine with a component interface in accordance with a component architecture specification. The component interface  
25 may include one or more definitions of methods of communication between the rules engine and the web server, wherein the methods of communication are operable to transmit the insurance claim assessment data from the web server to the rules engine and operable to transmit the insurance claim assessment questions from the rules engine to the web server. The insurance claim assessment data may include one or more bodily injuries and one or more treatments of the bodily injuries. The component architecture specification may include a Component Object  
30 Model (COM) specification.

The present invention provides various embodiments of a method and system for resetting the state of a web-enabled insurance claims processing insurance system. A first page of insurance claim assessment data may be displayed in a browser program executing on a computer system. The browser program may include a web browser program which is operable to read and display web pages. The computer system which executes the  
35 browser program may include a client computer system which is communicatively coupled to a server computer system. The server computer system may be operable to generate and send a plurality of pages of insurance claim assessment data to the client computer system.

40 The first page may include one or more specialized navigation commands, and the browser program may include one or more standard navigation commands. The specialized navigation commands and the standard navigation commands may be displayed in the browser. The specialized navigation commands may include specialized navigation buttons in a graphical user interface (GUI), and selecting one of the specialized navigation

commands comprises pushing one of the specialized navigation buttons. The specialized navigation commands may include a back command and a reset command. The specialized back command may be operable to redisplay a previous page of insurance claim assessment data. The standard navigation commands may include standard navigation buttons in a GUI, and selecting one of the standard navigation commands may include pushing one of the standard navigation buttons. The standard navigation commands may comprise a forward command and a back command. The standard back command may be operable to redisplay a previous web page, whether or not the previous web page includes insurance claim assessment data.

One of the specialized navigation commands, such as a forward command, may be selected to advance to a second page of insurance claim assessment data. The second page of insurance claim assessment data, including the specialized navigation commands, may be displayed in the browser. After the second page of insurance claim assessment data is displayed, one of the standard navigation commands may be selected to move back to the first page of insurance claim assessment data. The first page of insurance claim assessment data may then be redisplayed.

The user may attempt to perform an insurance claim assessment task on the redisplayed first page of insurance claim assessment data. For example, the user may attempt to save a status of an insurance claim consultation. The insurance claim consultation may include an interactive determination of an estimate of a value of an insurance claim through the entry of insurance claim assessment data in response to insurance claim assessment questions. The insurance claim assessment task may also include, for example, entering new or modifying existing insurance claim assessment data. Insurance claim assessment data may include information relevant to an estimate of a value of an insurance claim, such as bodily injuries and treatments thereof. The insurance claim assessment data may include bodily injury claim assessment data, and the insurance claim assessment task may include a bodily injury claim assessment task.

A navigation error may be generated as a result of the attempting to perform an insurance claim assessment task. In one embodiment, a navigation error message may be generated and displayed as a result of the generating the navigation error. The navigation error message may include an instruction to select a reset command, wherein the reset command is one of the specialized navigation commands. The user may select the reset command after viewing the navigation error message. The second page of insurance claim assessment data may then be redisplayed. The user may then perform a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

The present invention provides various embodiments of an Internet-enabled method and system for processing insurance claims. The system may include an insurance claim processing server which may include a first CPU and a first memory coupled to the first CPU. The first memory may store a first set of program instructions which are executable by the first CPU to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user during an insurance claim consultation session. The insurance claim may include a bodily injury claim, and the estimate of the value of the insurance claim may include an estimate of bodily injury general damages. The insurance claim assessment data may include one or more bodily injuries and one or more treatments of the bodily injuries. The first set of program instructions may include a rules engine and a web server. The first set of program instructions may be further executable by the first CPU to generate and send to a client computer system a plurality of web pages comprising insurance claim assessment questions.



The system may also include a client computer system which may include a second CPU and a second memory coupled to the second CPU. The client computer system may be coupled to the insurance claim processing server through a network. The network may include the Internet, and the insurance claim processing server and the client computer system may therefore be operable to communicate over the network via TCP/IP.

5 The second memory may store a second set of program instructions which are executable by the second CPU to receive the insurance claim assessment data entered by the user and send the insurance claim assessment data across the network to the insurance claim processing server. The second set of program instructions may include a web browser. The second set of program instructions may be further executable by the second CPU to display the web pages comprising the insurance claim assessment questions during the insurance claim consultation  
10 session.

In one embodiment, the system may include additional client computer systems such as a second client computer system including a third CPU and a third memory. The second client computer system may be coupled to the insurance claim processing server through the network. The third memory may store a third set of program instructions, such as a second web browser, which are executable by the third CPU to receive a second set of  
15 insurance claim assessment data entered by a second user. The third set of program instructions may be further executable to send the second set of insurance claim assessment data across the network to the insurance claim processing server. The first set of program instructions may be further executable to estimate a value of a second insurance claim as a function of the second set of insurance claim assessment data entered by the second user during a second insurance claim consultation session.

20 The present invention provides various embodiments of a method and system for hosting an insurance claim processing system according to a pricing model. The method may include hosting an insurance claim processing server which is configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user during an insurance claim consultation session. The insurance claim may include a bodily injury claim, and the estimate of the value of the insurance claim may include an estimate of  
25 bodily injury general damages.

The method may further include charging the user for access to the insurance claim processing server through client software according to a pricing model. The client software may be operable to receive the insurance claim assessment data entered by the user and send the insurance claim assessment data across a network to the insurance claim processing server. The insurance claim processing server may be operable to send  
30 the estimate of the value of the insurance claim to the client software across the network. In one embodiment, the network may include the Internet. In one embodiment, the insurance claim processing server may include a rules engine and a web server, and the client software may include a web browser. The web server may be operable to generate web pages and receive responses and requests from the web browser to enable communication between the rules engine and the web browser.

35 The method may further include charging additional users for access to the insurance claim processing server through client software according to a same or different pricing model.

Various pricing models may be used with various embodiments of the hosting system and method. The pricing model may include a fee for each of a plurality of insurance claim consultation sessions conducted by the user. The pricing model may include a fee for each fixed period of access time of access by the user to the  
40 insurance claim processing server through the client software. For example, the fixed period of access time may include an hourly multiple, a weekly multiple, a monthly multiple, a yearly multiple, or a multiple of minutes.

The pricing model may include a fee which varies directly with an amount of time spent accessing the insurance claim consultation session through the client software.

The user may include an insurance organization having a particular size, and the pricing model varies according to the size of the user. The size of the user may include a function of a quantity of employees of the user, a function of a revenue of the user over a period of time, and/or a function of a quantity of consultation sessions conducted by the user over a period of time. The pricing model may include a pricing discount given to the user after a particular quantity of insurance claim consultation sessions conducted by the user in a particular period of time. The insurance claim consultation session may include one or more insurance claim consultation transactions, and the pricing model may include a fee for each of a plurality of insurance claim consultation transactions conducted by the user during one or more insurance claim consultation sessions.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1a is a block diagram illustrating the architecture of one embodiment of an insurance claims processing system;

Figure 1b illustrates one embodiment of a networked insurance claim processing system;

Figure 1c is a block diagram illustrating the architecture of one embodiment of an insurance claims processing system;

Figure 2 illustrates a structure for an insurance claims processing help database that may be used for context sensitive help and for searching for terms according to one embodiment of an insurance claim processing system;

Figure 3 illustrates a table including document header information according to one embodiment of an insurance claim processing system;

Figure 4 illustrates a table including document text information according to one embodiment of an insurance claim processing system;

Figure 5 illustrates an index table including terms and codes and cross-references to other tables according to one embodiment of an insurance claim processing system;

Figure 6a is a flow diagram illustrating a method for generating the various tables in an insurance claims processing help database according to one embodiment of an insurance claim processing system;

Figures 6b through 6h are flow diagrams illustrating a mechanism for generating relevance values for occurrences in an insurance claims processing help database according to one embodiment of an insurance claims processing system;

Figures 7a-7c are flow diagrams illustrating a mechanism for providing context-sensitive help according to one embodiment of an insurance claim processing system;

Figure 8 illustrates a display screen showing multiple panes, wherein two of the panes comprise context sensitive help information, according to one embodiment of an insurance claim processing system;

Figure 9 is a flow diagram illustrating a mechanism for searching for insurance claims processing terms according to one embodiment of an insurance claim processing system;

Figure 10 illustrates a display screen showing multiple panes, wherein two of the panes comprise search results information, according to one embodiment of an insurance claim processing system; and

Figure 11 shows the display screen of Figure 10, with one of the search results panes hidden to provide more display area for claims processing information, according to one embodiment of an insurance claim processing system;

Figure 1d is a network diagram of an illustrative distributed computing environment which is suitable for implementing various embodiments;

Figure 2aA is an illustration of an insurance claims processing server computer architecture according to one embodiment;

Figure 2bA is an illustration of an insurance claims processing client computer architecture according to one embodiment;

Figure 3aA is an illustration of an insurance claims processing server software architecture for a single client according to one embodiment;

Figure 3bA is an illustration of an insurance claims processing server software architecture for multiple clients according to one embodiment;

Figure 4A is an illustration of adapter software between a rules engine and a web server according to one embodiment;

Figure 5A illustrates the transmission of data between a web server and a web browser according to one embodiment;

Figure 6A illustrates an example of a browser-based user interface for the insurance claims processing system according to one embodiment;

Figure 7A is a flowchart illustrating a method of developing a web-based insurance claims processing system according to one embodiment;

Figure 8A is a flowchart illustrating a method of hosting a web-based insurance claims processing server with various pricing models according to one embodiment;

Figure 9A is a flowchart illustrating a method of using a reset button provided by a web-based interface to a web-based insurance claims processing server according to one embodiment;

Figure 2B illustrates a flow chart to generate a table of contents for processing an insurance claim according to one embodiment;

Figure 3B illustrates detail of step 150B in Figure 2B;

Figure 4B is a flowchart illustrating the use of a table of contents for processing an insurance claim according to one embodiment;

Figure 5B illustrates a screen shot of a table of contents display screen according to one embodiment;

Figure 6B illustrates exemplary properties and methods associated with a display screen object according to one embodiment;

Figure 2C is a flow chart illustrating the process of identifying critical factors affecting the fair estimate value, included in an insurance claim consultation report, according to one embodiment;

Figure 3C illustrates a table for storing injury codes, treatment codes and contributing factor values according to one embodiment;

Figure 2D illustrates a flow chart to transform formula data to formulas for assessing bodily injury damages claims according to one embodiment; and

Figure 3D illustrates data elements of a formula table according to one embodiment;

Figure 2E illustrates a flow chart to transform rules data to rules for assessing bodily injury damages claims according to one embodiment;

Figure 3aE illustrates data elements of a rules data table according to one embodiment;

Figure 3bE illustrates data elements of a template table according to one embodiment;

5 Figure 3cE illustrates data elements of a line text table according to one embodiment; and

Figure 4E illustrates a block diagram of the transformation of rules data to rules for assessing bodily injury damages according to one embodiment;

Figure 2F is a flowchart illustrating a method of generating messages associated with processing an insurance claim according to one embodiment;

10 Figure 3F is a flowchart illustrating a method of using a messages table associated with processing an insurance claim according to one embodiment;

Figure 4F is an exemplary diagram of a messages table in a database according to one embodiment.

15 While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that the drawings and detailed description thereto are not intended to limit the invention to the particular form disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the present invention as defined by the appended claims.

#### 20 DETAILED DESCRIPTION OF SEVERAL EMBODIMENTS

Figure 1a: A block diagram illustrating the architecture of one embodiment of an insurance claims processing system

25 In Figure 1a, an embodiment of an insurance claims processing system 10 may include a computer system 20. The term "computer system" as used herein generally includes the hardware and software components that in combination allow the execution of computer programs. The computer programs may be implemented in software, hardware, or a combination of software and hardware. A computer system's hardware generally includes a processor, memory media, and Input/Output (I/O) devices. As used herein, the term "processor" generally describes the logic circuitry that responds to and processes the basic instructions that operate a computer system. The term "memory" is used synonymously with "memory medium" herein. The term "memory medium" is  
30 intended to include an installation medium, e.g., a CD-ROM, or floppy disks, a volatile computer system memory such as DRAM, SRAM, EDO RAM, Rambus RAM, etc., or a non-volatile memory such as optical storage or a magnetic medium, e.g., a hard drive. The memory medium may comprise other types of memory as well, or combinations thereof. In addition, the memory medium may be located in a first computer in which the programs are executed, or may be located in a second different computer which connects to the first computer over a network. In  
35 the latter instance, the second computer provides the program instructions to the first computer for execution. Also, the computer system may take various forms, including a personal computer system, mainframe computer system, workstation, network appliance, Internet appliance, personal digital assistant (PDA), television system or other device. In general, the term "computer system" can be broadly defined to encompass any device having a processor which executes instructions from a memory medium.

40 The memory medium preferably stores a software program or programs for processing insurance claims as described herein. The software program(s) may be implemented in any of various ways, including procedure-based techniques, component-based techniques, and/or object-oriented techniques, among others. For example,

the software programs may be implemented using a rule-based development tool such as PLATINUM Aion™ available from Computer Associates International, Inc. In one embodiment, PLATINUM Aion™ may combine business rule and object-oriented technologies to create and maintain complex, knowledge-intensive applications. Software developed with PLATINUM Aion™ may employ an Aion™ programming language for automation of processes which may use hundreds or thousands of business rules from a knowledge base. An Aion™ inference engine may automatically determine which rules to execute, when, and in what order. In various other embodiments, the software program may be implemented using other technologies, languages, or methodologies, as desired. A CPU, such as the host CPU, executing code and data from the memory medium includes a means for creating and executing the software program or programs according to the methods, flowcharts, and/or block diagrams described below.

A computer system's software generally includes at least one operating system, a specialized software program that manages and provides services to other software programs on the computer system. Software may also include one or more programs to perform various tasks on the computer system and various forms of data to be used by the operating system or other programs on the computer system. The data may include but are not limited to databases, text files, and graphics files. A computer system's software generally is stored in non-volatile memory or on an installation medium. A program may be copied into a volatile memory when running on the computer system. Data may be read into volatile memory as the data is required by a program.

A server may be defined as a computer program that, when executed, provides services to other computer programs executing in the same or other computer systems. The computer system on which a server program is executing may also be referred to as a server, though it may contain a number of server and client programs. In the client/server model, a server is a program that awaits and fulfills requests from client programs in the same or other computer systems.

The insurance claims processing system 10 may further include a display screen 50 connected to the computer system 20 and an insurance database 40 residing on an internal or external storage. The database may also be referred to as a repository. As used herein, a "database" may include a collection of information from which a computer program may select a desired piece of data. As used herein, an "insurance database" is used as a synonym for a "database" when included in or coupled to an insurance claims processing system 10. System 20 includes memory 30 configured to store computer programs for execution on system 20, and a central processing unit (not shown) configured to execute instructions of computer programs residing on system 20. Claims processing program 60, also referred to as application program software 60, may be stored in memory 30. As used herein, an "insurance claims processing program" 60 may include a software program which is configured to conduct transactions regarding insurance claims, such as by estimating the value of the insurance claims, for example.

The insurance claims processing system 10 may be used by an Insurance Company for various embodiments of a system and method for processing insurance claims using a Table of Contents (TOC). As used herein, an Insurance Company (IC) includes a business organization that provides insurance products and/or services to customers. More particularly, the insurance products may pertain to providing insurance coverage for accidents and the trauma-induced bodily injuries that may result due to the accident. Examples of trauma-induced bodily injuries may include, but are not limited to: loss of limb(s); bone fractures; head, neck and/or spinal injury, etc.

In one embodiment, on receiving a trauma-induced bodily injury, a customer may file an insurance claim with his/her insurance organization to cover medical and other accident-related expenses. An IC may utilize a computer-based insurance claim processing system to process insurance claims. In one embodiment, the processing may include estimating a value associated with the filed insurance claim.

5 As used herein, an IC business transaction may be defined as a service of an IC. Examples of business transactions include, but are not limited to: insurance transactions such as filing of claims, payment of claims, application for insurance coverage, and customized benefits, etc. Business transactions may also include services related to customers, insurance providers, employers, insurance agents, investigators, etc.

10 As used herein, an IC insurance claim processing includes a series of instructions executed by a computer system for processing an IC's business transactions. A claim processing system may include one or more processing tasks. A processing task may include a sequence of one or more processing steps or an ordered list or a structured list of one or more processing steps, associated with the business transaction to be processed by the claim processing system. In one embodiment, the sequence of steps may be fixed. In another embodiment the sequence of steps may be established dynamically, in real-time. In one embodiment, the sequence of one or more  
15 steps may include an initial step, a final step, one or more intermediary steps, etc. In one embodiment, an IC user may select steps to process an insurance claim in a sequential manner. In another embodiment, the IC user may select steps to process an insurance claim in a random or arbitrary manner. Examples of processing steps may include, but are not limited to: receiving an input from a user of the IC insurance claim processing system, reading a value from a database, updating a field in a database, displaying the results of a business transaction on  
20 a computer screen, etc.

In one embodiment, the insurance claim processing system utilizes object-oriented technology to process insurance claims. In another embodiment, processing of insurance claims may utilize traditional programming languages and databases to achieve the same result. Insurance objects may be defined to represent or model real-world business features of insurance products and services. Examples of insurance objects may include, but are not  
25 limited to, objects representing the following: an insurance claim; an accident report; a settlement; an estimated claim; IC service facilities, customers, and employees; business process such as a new insurance application and calculation of a premium; interfaces to external insurance organizations; work tasks such as calculations, decisions, and assignments; temporal objects such as calendars, schedulers, and timers; and elemental data necessary to accomplish work tasks such as medical costs, risk factors, etc.

30 An insurance object may be represented on the computer screen by a graphical icon or by a display listing the properties of the insurance object in graphic and alphanumeric format. An insurance claim object may be configured to gather and evaluate data for processing a filed insurance claim and to automatically make decisions about the insurance claim. The one or more processing steps associated with the processing of an insurance claim may also be configured as one or more processing step objects. In one embodiment, a display screen may be associated with a  
35 processing step. The display screen may also be represented as an object. Each display screen object may include a property to point to a previous display and another property to point to a next display screen. Each property, e.g. the next display pointer on a display screen object, may be changed dynamically by using methods associated with the display screen object. One display screen object may serve as the starting point for processing insurance claims. In one embodiment, the starting point for processing insurance claims may include acquiring an insurance claim  
40 identification number from an IC system user.

In one embodiment, during the processing of an insurance claim, a business rule and/or an IC system user input may determine that the insurance claim processing needs the execution of additional steps or tasks to continue the processing of the claim. The IC system user may provide inputs to the insurance claims processing program 60 at any display screen associated with a step included in the Table of Contents (see Figure 2 for a discussion of the generation of the Table of Contents according to one embodiment). The insurance claim processing software may dynamically modify the number of steps and/or the sequence of their execution to complete the claim processing transaction. An IC system user working at a client system may then iterate through the claim processing steps and arrive at an estimated value for the insurance claim.

In one embodiment, upon startup, the program 60 may provide a graphical user interface to display claims processing related information on display screen 50. It may collect user inputs, entered by using user input devices 52, and associated with insurance claims. It may process the user inputs, access an insurance database 40, use the contents of the insurance database 40 to estimate the insurance claim, and store it in memory 30 and/or insurance database 40. The program 60 may display a value of the estimated insurance claim on display screen 50. A user may view the display of the estimated insurance claim on display screen 50, and may interactively make modifications, additions, and deletions to the estimated insurance claim.

System 20 may also include one or more user input devices 52, such as a keyboard, for entering data and commands into the insurance claim program 60. It may also include one or more cursor control devices 54 such as a mouse for using a cursor to modify an insurance claim viewed on display screen 50. In response to the updating of the estimated insurance claim, the insurance claim program 60 may store the updated insurance claim in the insurance database 40.

Figure 1b: One embodiment of a networked insurance claim processing system

Figure 1b illustrates one embodiment of a networked system, configured for processing insurance claims. In this embodiment, the system is shown as a client/server system with the server systems and client systems connected by a network 62. Network 62 may be a local area network or wide area network, and may include communications links including, but not limited to: Ethernet, token ring, internet, satellite, and modem. Insurance claims processing system 10 as illustrated in Figure 1a may be connected to network 62. The insurance claim processing system software and insurance database 40 may be distributed among the one or more servers 70 to provide a distributed processing system for insurance claim transactions. In other words, an insurance claim processing transaction being processed by the insurance claim processing system may be routed to any server based upon the workload distribution among servers 70 at the time of the transaction. Insurance claim processing system servers 70 may be located on a local area network or may be geographically dispersed in a wide area network.

One or more client systems 80 may also be connected to network 62. Client systems 80 may reside at one or more claim processing units within the insurance company. In a wide area network, client systems 80 may be geographically dispersed. Client systems 80 may be used to access insurance claim processing system servers 70 and insurance database 40. An insurance claim-processing employee may use a client system 80 to access the insurance claim processing system and execute insurance transactions. An employee may also use a client system 80 to enter insurance claim inputs into the insurance claim processing system. One or more printers 90 may also be connected to network 62 for printing documents associated with insurance claim transactions.

Various embodiments further include receiving or storing instructions and/or data implemented in

accordance with the description herein upon a carrier medium. Suitable carrier media include memory media or storage media such as magnetic or optical media, e.g., disk or CD-ROM, as well as transmission media or signals such as electrical, electromagnetic, or digital signals, conveyed via a communication medium such as networks and/or a wireless link.

5

Figure 1c - The architecture of an insurance claims processing system

In Figure 1c, an embodiment of an insurance claims processing system 10 may include a computer system 20. The term "computer system" as used herein generally includes the hardware and software components that in combination allow the execution of computer programs. The computer programs may be implemented in software, hardware, or a combination of software and hardware. A computer system's hardware generally includes a processor, memory media, and Input/Output (I/O) devices. As used herein, the term "processor" generally describes the logic circuitry that responds to and processes the basic instructions that operate a computer system. The term "memory" is used synonymously with "memory medium" herein. The term "memory medium" is intended to include an installation medium, e.g., a CD-ROM, or floppy disks, a volatile computer system memory such as DRAM, SRAM, EDO RAM, Rambus RAM, etc., or a non-volatile memory such as optical storage or a magnetic medium, e.g., a hard drive. The memory medium may comprise other types of memory as well, or combinations thereof. In addition, the memory medium may be located in a first computer in which the programs are executed, or may be located in a second different computer that connects to the first computer over a network. In the latter instance, the second computer provides the program instructions to the first computer for execution. In addition, the computer system may take various forms, including a personal computer system, mainframe computer system, workstation, network appliance, Internet appliance, personal digital assistant (PDA), television system or other device. In general, the term "computer system" can be broadly defined to encompass any device having a processor that executes instructions from a memory medium.

The memory medium preferably stores a software program or programs for processing insurance claims as described herein. The software program(s) may be implemented in any of various ways, including procedure-based techniques, component-based techniques, and/or object-oriented techniques, among others. For example, the software programs may be implemented using a rule-based development tool such as PLATINUM Aion™ available from Computer Associates International, Inc. In one embodiment, PLATINUM Aion™ may combine business rule and object-oriented technologies to create and maintain complex, knowledge-intensive applications. Software developed with PLATINUM Aion™ may employ an Aion™ programming language for automation of processes which may use hundreds or thousands of business rules from a knowledge base. An Aion™ inference engine may automatically determine which rules to execute, when, and in what order. In various other embodiments, the software program may be implemented using other technologies, languages, or methodologies, as desired. A CPU, such as the host CPU, executing code and data from the memory medium includes a means for creating and executing the software program or programs according to the methods, flowcharts, and/or block diagrams described below.

A computer system's software generally includes at least one operating system, a specialized software program that manages and provides services to other software programs on the computer system. Software may also include one or more programs to perform various tasks on the computer system and various forms of data to be used by the operating system or other programs on the computer system. The data may include but are not limited to databases, text files, and graphics files. A computer system's software generally is stored in non-volatile memory or



on an installation medium. A program may be copied into a volatile memory when running on the computer system. Data may be read into volatile memory as required by a program.

A server may be defined as a computer program that, when executed, provides services to other computer programs executing in the same or other computer systems. The computer system on which a server program is  
5 executing may also be referred to as a server, though it may contain a number of server and client programs. In the client/server model, a server is a program that awaits and fulfills requests from client programs in the same or other computer systems.

The insurance claims processing system 10 may further include a display screen 50 connected to the computer system 20 and an insurance database 40 residing on an internal or external storage. The database may  
10 also be referred to as a repository. As used herein, a “database” may include a collection of information from which a computer program may select a desired piece of data. As used herein, an “insurance database” is used as a synonym for a “database” when included in or coupled to an insurance claims processing system 10. System 20 includes memory 30 configured to store computer programs for execution on system 20, and a central processing  
15 unit (not shown) configured to execute instructions of computer programs residing on system 20. Claims processing program 60, also referred to as application program software 60, may be stored in memory 30. As used herein, an “insurance claims processing program” 60 may include a software program which is configured to conduct transactions regarding insurance claims, such as by estimating the value of the insurance claims, for example.

The insurance claims processing system 10 may be used by an Insurance Company for various  
20 embodiments of a system and method for processing insurance claims. As used herein, an Insurance Company (IC) includes a business organization that provides insurance products and/or services to customers. More particularly, the insurance products may pertain to providing insurance coverage for accidents and the trauma-induced bodily injuries that may result due to the accident. Examples of trauma-induced bodily injuries may include, but are not limited to: loss of limb(s); bone fractures; head, neck and/or spinal injury, etc.

In one embodiment, on receiving a trauma-induced bodily injury, a customer may file an insurance claim  
25 (IC) with his/her insurance organization to cover medical and other accident-related expenses. An IC may utilize a computer-based insurance claim processing system to process insurance claims. In one embodiment, the processing may include estimating a value associated with the filed insurance claim.

As used herein, an IC business transaction may be defined as a service of an IC. Examples of business  
30 transactions include, but are not limited to: insurance transactions such as filing of claims, payment of claims, application for insurance coverage, and customized benefits, etc. Business transactions may also include services related to customers, insurance providers, employers, insurance agents, investigators, etc.

As used herein, an IC insurance claim processing includes a series of instructions executed by a computer system for processing an IC’s business transactions. A claim processing system may include one or  
35 more processing tasks. A processing task may include a sequence of one or more processing steps or an ordered list or a structured list of one or more processing steps, associated with the business transaction to be processed by the claim processing system. In one embodiment, the sequence of steps may be fixed. In another embodiment the sequence of steps may be established dynamically, in real-time. In one embodiment, the sequence of one or more steps may include an initial step, a final step, one or more intermediary steps, etc. In one embodiment, an IC user  
40 may select steps to process an insurance claim in a sequential manner. In another embodiment, the IC user may select steps to process an insurance claim in a random or arbitrary manner. Examples of processing steps may

include, but are not limited to: receiving an input from a user of the IC insurance claim processing system, reading a value from a database, updating a field in a database, displaying the results of a business transaction on a computer screen, etc.

In one embodiment, the insurance claim processing system utilizes object-oriented technology to process insurance claims. In another embodiment, processing of insurance claims may utilize traditional programming languages and databases to achieve the same result. Insurance objects may be defined to represent or model real-world business features of insurance products and services. Examples of insurance objects may include, but are not limited to, objects representing the following: an insurance claim; an accident report; a settlement; an estimated claim; IC service facilities, customers, and employees; business process such as a new insurance application and calculation of a premium; interfaces to external insurance organizations; work tasks such as calculations, decisions, and assignments; temporal objects such as calendars, schedulers, and timers; and elemental data necessary to accomplish work tasks such as medical costs, risk factors, etc.

An insurance object may be represented on the computer screen by a graphical icon or by a display listing the properties of the insurance object in graphic and/or alphanumeric format. An insurance claim object may be configured to gather and evaluate data for processing a filed insurance claim and to automatically make decisions about the insurance claim. The one or more processing steps associated with the processing of an insurance claim may also be configured as one or more processing step objects. In one embodiment, a display screen, which also may be referred to as a page, may be associated with a processing step. The display screen may also be represented as an object. Each display screen object may include a property to point to a previous display and another property to point to a next display screen. Each property, e.g. the next display pointer on a display screen object, may be changed dynamically by using methods associated with the display screen object. One display screen object may serve as the starting point for processing insurance claims. In one embodiment, the starting point for processing insurance claims may include acquiring an insurance claim identification number from an IC system user.

In one embodiment, during the processing of an insurance claim, a business rule and/or an IC system user input may determine that the insurance claim processing needs the execution of additional steps or tasks to continue the processing of the claim. The IC system user may provide inputs to the insurance claims processing program 60 at any display screen associated with a step included in the Table of Contents. The insurance claim processing software may dynamically modify the number of steps and/or the sequence of their execution to complete the claim processing transaction. An IC system user working at a client system may then iterate through the claim processing steps and arrive at an estimated value for the insurance claim.

In one embodiment, upon startup, the program 60 may provide a graphical user interface to display claims processing related information on display screen 50. It may collect user inputs, entered by using user input devices 52, and associated with insurance claims. It may process the user inputs, access an insurance database 40, use the contents of the insurance database 40 to estimate the insurance claim, and store it in memory 30 and/or insurance database 40. The program 60 may display a value of the estimated insurance claim on display screen 50. A user may view the display of the estimated insurance claim on display screen 50, and may interactively make modifications, additions, and deletions to the estimated insurance claim.

System 20 may also include one or more user input devices 52, such as a keyboard, for entering data and commands into the insurance claim program 60. It may also include one or more cursor control devices 54 such as a mouse for using a cursor to modify an insurance claim viewed on display screen 50. In response to the updating

of the estimated insurance claim, the insurance claim program 60 may store the updated insurance claim in the insurance database 40.

In one embodiment, the insurance claims processing system may provide context-sensitive help for the processing steps. In one embodiment, the context-sensitive help for the step may be automatically invoked and displayed on display screen 50 when entering the step. In one embodiment, the user may interactively invoke context-sensitive help for the step by selecting one or more interface items on the display screen 50 with a cursor control device 54 such as a mouse. In one embodiment, the user may interactively invoke context-sensitive help for the step by using an input device 52. For example, the user may select one or more keys or a combination of keys on a keyboard to activate context-sensitive help. The context-sensitive help for each processing step may be unique, although content may appear in the context-sensitive help for two or more processing steps.

In one embodiment, information for the context sensitive help may be accessed from help database 400. Help database 400 may include one or more one or more documents including information that may be useful to a user in performing the various processing steps associated with insurance claims processing. Help database 400 may also include one or more tables that provide access to the information in the documents. Each table may include a plurality of records or entries that may be used to locate help information about processing steps and/or the elements in processing steps in the one or more documents in the help database 400.

In one embodiment, a search interface may be provided in the insurance claims processing system. A user may enter in the search interface one or more terms to be searched for in help database 400 for the insurance claims processing system. The user may then initiate the search for the one or more terms. The insurance claims processing system may then search the help database 400 for entries including at least one of the one or more terms. The insurance claims processing system may locate one or more entries in the help database 400 that include at least one of the one or more terms. The insurance claims processing system may then display information on display screen 50 from the located help database 400 entries.

#### Figure 2 - An Insurance Claims Processing Help Database Structure

Figure 2 illustrates one embodiment of an insurance claims processing help database 400 that may be used for context sensitive help and for searching for terms in an insurance claim processing system. Help database may include one or more index tables 402, one or more header tables 404, one or more text tables 406, and one or more documents 408. One embodiment may include one index table 402, one header table 404, and one text table 406. In another embodiment, the header table 404 and text table 406 may be combined into one master table comprising entries for header portions and text portions of the one or more documents 408.

Index tables 402, header tables 404, and text tables 406 may each include one or more records or entries. The entries in index tables 402 may each include a field comprising one or more terms or codes that may be used as keys for locating entries in header tables 404 and/or text tables 406. The entries in index tables 402 may each also include information for locating an entry in one of the one or more header tables 404 or text tables 406. In one embodiment, an identification number may be used to identify each entry in the one or more header tables 404 and text tables 406. The identification number may be referred to herein as an object ID. In one embodiment, each entry in the index tables 402 may include an object ID that identifies, and that may be used to locate, one entry in one of the header tables 404 or text tables 406. In one embodiment, index tables 402 may include two or more entries that include the same object ID. In other words, two or more index table 402 entries may indicate, or point to, the same entry in a header table 404 or text table 406. Each entry in index tables 402

may be referred to as an occurrence of the term or code included in the index table 402 entry in the help database 400.

In one embodiment, each entry in the header tables 404 and text tables 406 may include a unique object ID that may be used to locate the entry. In one embodiment, each entry in the header tables 404 may include a field containing a header or a portion of a header from one of the one or more documents 408. Alternatively, each entry in the header tables 404 may include information that may be used to locate a header or a portion of a header in one of the one or more documents 408. In one embodiment, each entry in the text tables 404 may include a field containing a text section or a portion of a text section from one of the one or more documents 408. Alternatively, each entry in the text tables 406 may include information that may be used to locate a text section or a portion of a text section in one of the one or more documents 408.

An example of locating headers and text in documents 408 using index tables 402, header tables 404 and text tables 406 follows. Index table may include index entries 410 and 412. Index entry 410 may include a term or code included in a header of one of the documents 408. Index entry 410 may include an object ID that may be used to locate header entry 414 in one of the header tables 404. Header entry 414 may include a portion or all of header 418 from one of the one or more documents 408. Alternatively, header entry 414 may include information that may be used to locate header 418 in one of the one or more documents 408. If index entry 410 includes a term, then the term may appear one or more times in header 418 and/or in the portion of header 418 included in header entry 414. If index entry 410 includes a code, then the code may indicate the index table entry 410 refers to a particular header or portion of a header in its entirety (i.e. this is not an occurrence of a term). In one embodiment, codes may be used to identify headers or sections of text in documents 408. In one embodiment, codes may be included as "hidden" text in one or more sections of documents 408, and may be used in constructing header tables 404 and text tables 406.

Index entry 412 may include a term or code included in a text section of one of the documents 408. Index entry 412 may include an object ID that may be used to locate text entry 416 in one of the text tables 406. Text entry 416 may include a portion or all of text section 420 from one of the one or more documents 408. Alternatively, text entry 416 may include information that may be used to locate text 420 in one of the one or more documents 408. If index entry 412 includes a term, then the term may appear one or more times in text section 420 and/or in the portion of text section 420 included in text entry 416. If index entry 412 includes a code, then the code may indicate the index table entry 412 refers to a particular text section or portion of a text section (i.e. this is not an occurrence of a term).

Embodiments of index tables 402, header tables 404 and text tables 406 are further described in Figures 3, 4, and 5, respectively.

### Figure 3 - A table including document header information

Figure 3 illustrates one embodiment of a table including header information from one or more documents 408 related to insurance claims processing. The header table 404 may include a plurality of records, also referred to as entries, with one entry for each header element from the one or more documents 408 to be included in a help database 400 for the insurance claims processing system. Each entry may comprise a plurality of fields, which also may be referred to as elements of the entry.

An entry may include an object identifier (object ID) 100 for the entry. In one embodiment, the object ID 100 for the entry may be unique in the help database 400. In one embodiment, the object ID 100 may include

information that may be used to identify the document that includes the header, and the location in the document of the header. For example, the object ID 100 of the first entry in the header table 404 of Figure 3 may indicate that the entry is for the header of the first chapter of a first document included in the help database 400, the object ID 100 of the second entry may indicate that the entry is for the header of the first section of the first chapter of the first document, and so on.

An entry may also include the object identifier of a parent entry (parent ID 102) for the entry. For example, the parent ID 102 of the entries for the headers of several sections in the first chapter of a document may be the object ID 100 of the entry for the header of the chapter.

An entry in the header table 404 may also include information on the location in the document of the header. For example, byte count 104 may represent the byte (character) location in the document of the start of the header. For example, the header of the first entry in the header table 404 illustrated in Figure 3 may start at the first byte of the document, the header of the second entry may start at the 26<sup>th</sup> byte of the document, etc.

In one embodiment, an entry in the header table 404 may also include the alphanumeric text of the header from the document in name field 106. When the entry is located during context sensitive help or a search, the header text in name 106 may be read from the header table and displayed on the display screen for the user to view. In another embodiment, the entry may not store the actual text for the header, but may instead include information for locating the text for the header in the document. In this embodiment, when the entry is located, the actual text of the header may be read from the document itself and displayed for the user.

The order of the columns and rows in the header table 404 as illustrated in Figure 3 is exemplary and is not intended to be limiting.

#### Figure 4 - A table including document text information

Figure 4 illustrates one embodiment of a table including text information from one or more documents 408 related to insurance claims processing. The text table 406 may include a plurality of entries, with one entry for each text section from the one or more documents 408 to be included in the help database 400 for the insurance claims processing system. Each entry may comprise a plurality of fields, which also may be referred to as elements of the entry. In one embodiment, the fields may be substantially similar to the fields in embodiments of the header table 404 as illustrated in Figure 3.

An entry may include an object identifier 110 (object ID), for the entry. In one embodiment, the object ID 110 for the entry may be unique in the help database 400. In one embodiment, the object ID 110 may include information that may be used to identify the document including the text section and the location in the document of the text section. Object ID 110 may also include information to distinguish a text table 406 entry from a header table 404 entry. For example, a non-zero last digit in the object ID 110 may indicate that the entry is a text table 406 entry and not a header table 404 entry. The entry may also include the object identifier of a parent entry (parent ID 112) for the entry. The parent ID 112 may point to an entry in the text table 406 as the parent of the entry. The entry may also include a text field 116 that may include some or all of the text from a section of one of the one or more documents 408 in the help database 400. When the entry is located during context sensitive help or a search, the text in text field 116 may be read from the text table and displayed on the display screen for the user to view. Alternatively, the entry may not store the actual text, but may instead include information for locating the text in the document. In this case, when the entry is located, the actual text may be read from the document itself and displayed for the user.

The order of the columns and rows in the text table illustrated in Figure 4 is exemplary and is not intended to be limiting.

Figure 5 - An index table

Figure 5 illustrates one embodiment of an index table 402 for locating terms and/or codes for context-sensitive help and for interactively searching for terms in the help database 400. Each entry in the index table 402 may represent an occurrence of a term or code in the one or more documents 408 included in the help database 400 for the insurance claims processing system. Examples of documents that may be included in the help database 400 for the insurance claims processing system include, but are not limited to: medical journals, textbooks and/or manuals, insurance claims processing manuals or guidebooks, medical glossaries and/or dictionaries, and documents including context sensitive help entries for the insurance claims processing steps, and elements of the steps, in the insurance claims processing system.

An entry in the index table 402 may include an object ID 140. The object ID 140 may indicate a unique entry in a help information table in the help database. In one embodiment, the help database may include one or more header tables 404 as illustrated in Figure 3 and one or more text tables 406 as illustrated in Figure 4.

An entry in the index table may also include a term field 142. In one embodiment, term field 142 may include one or more terms located in the one or more documents 408 in the help database 400. In one embodiment, term field 142 may include a code representing a step or page in the insurance claims processing system or an element in a step in the insurance claims processing system. The codes may be used in invoking context-sensitive help in the insurance claims processing system. One embodiment may include one or more entries with one or more terms in term field 142 and one or more entries with codes in term field 142.

An entry in the index table 402 may also include a Soundex field 144. Soundex is a commonly used algorithm for encoding words so that similar sounding words encode the same. In one embodiment, the first letter of a word to be converted to a Soundex equivalent may be copied unchanged, and then subsequent letters may be encoded as follows:

b,f,p,v	-> "1"
c,g,j,k,q,s,x,z,ç	-> "2"
d,t	-> "3"
l	-> "4"
m,n,ñ	-> "5"
r	-> "6"

Other characters may be ignored and repeated characters may be encoded as though they were a single character. Encoding may stop when the resulting string is four characters long, adding trailing "0"s if it is shorter. As an example, "SMITH" or "SMYTHE" may both be encoded as "S530". The Soundex equivalent may be used for locating entries in index table when a user mistypes or misspells a word when initiating a search. In one embodiment, codes for steps and step elements are not given a Soundex equivalent, as a Soundex equivalent of a code is not generally useful.

Columns 146, 148, and 150 may be used during calculation of the relevance of an entry. For each entry in the index table 402, column 146 may indicate the position of the term or code in the text section or header in

which this occurrence of the term or code appears. Column 148 may indicate the total count of words in the text section or header. For example, in the first entry of the index table 402 as illustrated in Figure 5, the position column 146 indicates that the term "System" appears as the fifth word of the 54 words (from the total words column 148) in the text section indicated by the object ID column 140. Examining the second entry, the term "System" appears again as the ninth word of the same text section.

In one embodiment, the word count column 150 may be used with entries for headers in calculating the relevance value 152. Different information and methods may be used for calculating the relevance of occurrences of terms and codes appearing in headers than the information and methods used to calculate the relevance for terms and codes appearing in text sections. In calculating the relevance for headers, the percent of the total word count indicated in column 150 may be used as part of the calculation. The word count 150 indicates how many words make up the one or more words (or words represented by a code) as represented in column 142. For example, in the header entry in the seventh row of the index table as illustrated in Figure 5, the term "Anatomy" is in the third position (as indicated by column 146) of three words (as indicated by column 148) and includes one word. Thus, when calculating the relevance, "Anatomy" is approximately 33% of the header.

The last column of the index table 402 illustrated in Figure 5 may hold a calculated relevance 152 for the occurrence. The relevance may be calculated in advance for all occurrences. Alternatively, the relevance for occurrences may not be calculated in advance and stored in the index table 402, but instead may be calculated dynamically as needed. In one embodiment, columns 146, 148, and 150 may not be stored in the index table 402. Instead, the information may be used to calculate the relevance and then discarded. One embodiment of the index table 402 may include only an object ID 140, a term 142, and a relevance value 152. Another embodiment of an index table 402 may only include an object ID 140 and a term 142, and the relevance may be calculated dynamically.

In one embodiment, occurrences in headers may be considered of higher relevance than occurrences in text sections. Therefore, different methods may be applied to calculate the relevance of occurrences in headers than are applied to calculate the relevance of occurrences in text sections. In one embodiment, relevance values may be scaled to be between 0.0 and 1.0, with 1.0 being the highest relevance. In one embodiment, the relevance may be calculated so that a relevance value of 0.0 does not occur. Note that any scale may be used for the relevance calculation, as it may be the ordering of the relevance values that is useful, and not necessarily the scale on which the relevance values are calculated.

In one embodiment, a maximum relevance value may be provided for occurrences in text sections. This maximum value may be applied as a weight or scaling factor during the relevance calculation. In one embodiment, the maximum relevance value for occurrences in text sections may also serve as the minimum value for occurrences in headers. In this embodiment, header occurrences may always have at least as high a relevance value as the highest relevance text occurrences. In another embodiment, header occurrences may always have a higher relevance value than the highest relevance text occurrences.

The following is an example of using the tables in Figures 3, 4 and 5 for context-sensitive help in an insurance claims processing system. A user of the insurance claims processing system may begin processing of an insurance claim. The system may enter the first step in the processing of the claim. The first step may be displayed in a "page" on the display screen for the user. Information about the first step and the display page for the first step may be stored in the computer executing the insurance claims processing system. In this information, a code for the step, which may also be viewed as a code for the page, may be stored. When the step

is entered, the code may be read from the information, and the context-sensitive help system may search the index table 402 for one or more entries with a code in term field 142 matching the code for the step. Upon locating the one or more entries in the index table 402, the context-sensitive help system may locate one or more entries in the header tables 404 and/or text tables 406 in the help database 400 corresponding to the object IDs 140 in the entries in the index table 402. The header and text from the located one or more entries in the header tables 404 and/or text tables 406 may then be displayed as help information items on the display screen for the user. There may be one help information item displayed for each located entry in the index table 402. In one embodiment, the help information items may be displayed in an order of relevance using the relevance values 152 for the located entries in the index table 402.

Elements within a step may also be given a code, and the code may be included in one or more entries in the index table 402. When a step in insurance claims processing is entered, one or more codes for one or elements of the step may also be read from stored information about the step. Occurrences of help information for the one or more codes may be searched for, ranked by relevance, and displayed similarly to, and along with, the code for the step as described above.

The order of the columns and rows in the index table 402 illustrated in Figure 5 is exemplary and is not intended to be limiting.

#### Figures 6a - 6h - Generating a Help Database

Figure 6a is a flow diagram illustrating one embodiment of a mechanism for generating an insurance claims processing help database 400. In step 430, one or more documents may be processed into header tables 404 and text tables 406. In one embodiment, one entry is added to a header table 404 for each header in the one or more documents 408 in the help database 400. In one embodiment, one entry may be added to a text table 406 for each text section in the one or more documents 408 in the help database 400. An object ID may be assigned to each entry added to a header table 404 or text table 406. A parent ID of each entry may also be identified. The number of bytes in the section of text or header for the entry may also be determined. In one embodiment, the entry for each occurrence may include the object ID, parent ID, byte count and text section for text table 406 entries or header text for header table 404 entries.

In step 432, one or more index tables 402 may be generated. In one embodiment, a plurality of terms may be searched for in the header text of the entries in the one or more header tables 404 and in the text section of the entries in the one or more text tables 406. Each located occurrence of each term may be recorded as an entry in an index table 402. In one embodiment, one or more codes may be associated with headers and/or text sections in the one or more documents, and the one or more codes may be searched for in the header tables 404 and text tables 406. Each located occurrence of each code may be recorded as an entry in an index table 402. In one embodiment, a code may be used to identify a particular section of text or header in the one or more documents 408. For example, a code may be used to identify a section of text that may be displayed as the context sensitive help for a step in the insurance claims processing step. In one embodiment, an entry may be added to the index table for each occurrence of a term or code located in the name field 106 of an entry in a header table 404 or in the text field 116 of an entry in a text table 406. In step 434, the object ID of the header table 404 entry or text table 406 entry where each occurrence was located may be inserted in the object ID field 140 of the index table 402 entry for the occurrence.



In step 436, one or more other fields may be added to the entries in the index table 402. In one embodiment, a Soundex equivalent 144 may be added to entries that include a term in the term field 142. In one embodiment, a Soundex equivalent 144 may not be added for entries with a code in the term field 142. In one embodiment, for each entry in the index table 402, the position of the term or code in the text section or header in which this occurrence of the term or code appears may be entered in a position field 146. In one embodiment, the total count of words in the text section or header may be entered in a total words field 148. In one embodiment, for each header table 404 entry in the index table 402, a word count 150 may be entered that indicates the number of words in the term 142 for this occurrence. In one embodiment, for occurrences in text tables 406, a word count of zero may be entered.

In step 438, the relevance value 152 for each occurrence may be calculated and entered in index table 402. In one embodiment, the relevance value 152 for each occurrence may be calculated up front, when the help database tables are generated. In another embodiment, the relevance value 152 for an occurrence may be calculated dynamically when the occurrence is located for display in the insurance claims processing system. In this embodiment, the index table 402 may not include a relevance value 152 for each occurrence.

Figures 6b through 6h expand on step 438 of Figure 6a and further describe several embodiments of a mechanism for calculating the relevance values 152 of occurrences in the help database. In Figure 6b, the relevance values 152 for occurrences in text sections of the one or more documents may be calculated in step 450. In step 452, the relevance values 152 for occurrences in headers of the one or more documents may be calculated. In one embodiment, a different mechanism may be used to calculate the relevance values 152 for occurrences in headers than the mechanism used to calculate the relevance values 152 for occurrences in text sections.

Figure 6c expands on step 450 of Figure 6b and further describes one embodiment of a mechanism for calculating relevance values 152 for occurrences in text sections of the one or more documents in the help database. In step 460, the position 146 of the occurrence in the text section may be subtracted from the total words 148 for the text section. In one embodiment, the words in the text section may be numbered in a sequence from a first word to a last word. In one embodiment, the first word may be numbered as word 0, and the last word as word (N - 1), where N is the total number of words in the text section. In another embodiment, the first word may be numbered as word 1, and the last word as word N, where N is the total number of words in the text section. In this embodiment, in step 462, the results of step 460 may be incremented by one, which may be effective to prevent the relevance value from being zero. For example, applying step 460 to word 10 in a section with 10 words produces  $(10 - 10) = 0$ . Incrementing by one thus may assure that a relevance of zero is not produced. One skilled in the art will recognize that there may be various other methods for assuring that a relevance of zero is not produced. In yet another embodiment, the words may be numbered in reverse order, with the first word in the text section being numbered as word N, and the last word as word 1. In this embodiment, steps 460 and 462 may not be performed.

In step 464, the results of step 462, or the results of step 460 in embodiments in which step 482 is not performed, may be divided by the total words 148 for the text section to produce a ratio R1 that may represent the relevance value 152 for the text occurrence. In embodiments where steps 460 and 462 are not performed, in step 464, the word number of the term in the text section may be divided by the total words 148 to produce the ration R1. In one embodiment, the ratio R1 may be in the range  $(0 < R1 \leq 1.0)$ . In one embodiment, occurrences in headers may be considered more relevant than occurrences in text sections. In this embodiment, in step 466, R1 may be multiplied by a first scaling factor S1 to lower the relevance values of text section occurrences in relation

to occurrences in headers. For example, a scaling factor S1 of 0.33 may be applied to R1. Thus, in one embodiment, after step 466, R may be in the range ( $0 < R1 \leq S1$ ).

In one embodiment, in step 467, the output of step 466, or the output of step 464 in embodiments where step 466 is not performed, may be rounded to a number of significant digits. Various rounding methods may be used including rounding up, rounding down, and rounding to the nearest value. For example, if two significant digits are desired, the results may be rounded to produce results in the range (0.01-1.00) inclusive. In step 468, the results are output as the relevance value 152 for the occurrence in the text section. In one embodiment, the output relevance value 152 may be written to the index table 142.

The following is an example of applying one embodiment of a mechanism for calculating the relevance value for a text occurrence and is not intended to be limiting in any way. The first row of the index table 402 as illustrated in Figure 5 shows that the term "System" appears as the fifth of 54 words in a text section. A first scaling factor S1 of 0.33 is to be applied and the results rounded to two significant digits. Applying the steps of Figure 6c:

Step 460:  $54 - 5 = 49$   
 Step 462:  $49 + 1 = 50$   
 Step 464:  $50 / 54 = @ 0.925925$   
 Step 466:  $0.925925 * 0.33 = 0.30555525$   
 Step 467: Round (0.30555525) = 0.31

Figure 6d expands on step 452 of Figure 6b and further describes one embodiment of a mechanism for calculating relevance values 152 for occurrences in headers of the one or more documents in the help database. In step 470, a first relevance value based on the position of the term in the header may be calculated. In step 472, a second relevance value based on the percentage of the header the term occupies may be calculated. In step 474, the positional and percentage relevance values may be combined. In one embodiment, occurrences in headers may be considered more relevant than occurrences in text sections. In this embodiment, in step 476, the relevance value may be adjusted using a first scaling factor to adjust the relevance value in relation to the relevance values of occurrences in text sections. In one embodiment, in step 477, the output of step 476, or the output of step 474 in embodiments where step 476 is not performed, may be rounded to a number of significant digits substantially similarly to the rounding method used in step 467 of Figure 6c. In step 478, the results may be output as the relevance value 152 for the occurrence in the header. In one embodiment, the output relevance value 152 may be written to the index table 142.

Figure 6e expands on step 470 of Figure 6d, illustrating one embodiment of a mechanism for calculating the positional relevance of an occurrence in a header. In one embodiment, this mechanism may be substantially similar to the mechanism described in steps 460 to 464 of Figure 6c. In step 480 of Figure 6e, the position 146 of the occurrence in the header may be subtracted from the total words 148 for the occurrence. In one embodiment, in step 482, the results of step 480 may be incremented by one, which may be effective to prevent the relevance value from being zero. One skilled in the art will recognize that there may be various other methods for assuring that a relevance of zero is not produced. In step 484, the results of step 482, or the results of step 480 in embodiments in which step 482 is not performed, may be divided by the total words 148 for the occurrence to produce a ratio R2 that may represent the relevance value 152 for the header occurrence. The ratio R2 may be in

the range ( $0 < R2 \leq 1$ ).

Figure 6f expands on step 472 of Figure 6d, illustrating one embodiment of a mechanism for calculating the percentage relevance of an occurrence in a header. In one embodiment, a term may include one or more words. In step 486, the number of words 150 in the term 142 may be divided by the total number of words 148 in the header to produce the percentage of the header occupied by the term. For example, if a term comprises two words, and a header where an occurrence of the term is found comprises three words, then the percentage relevance may be calculated as  $2 / 3 = 0.667$ .

Figure 6g expands on step 474 of Figure 6d and illustrates one embodiment of a mechanism for combining the positional relevance as calculated in Figure 6e and the percentage relevance as calculated in Figure 6f for an occurrence in a header. In one embodiment, the positional relevance may be multiplied by a second scaling factor S2 in step 490. In step 492, the percentage relevance may be multiplied by  $(1 - S2)$ . In one embodiment, the percentage relevance may be considered more important than the positional relevance, and thus the percentage relevance may be given a larger weight than the positional relevance. For example, S2 may be assigned a value of 0.33, and the positional relevance multiplied by S2. The percentage relevance may then be multiplied by  $(1 - S2) = 0.67$ . In step 494, the scaled position and percentage relevance values may be added to produce the relevance value for the occurrence in the header.

In one embodiment, occurrences in headers may be considered more relevant than occurrences in text sections. Figure 6h expands on step 476 of Figure 6d and illustrates one embodiment of a mechanism for adjusting the header relevance value in relation to the relevance values of occurrences in text sections. In step 496, the header relevance value results of step 494 may be multiplied by  $(1 - S1)$ , where S1 is the first scaling factor as described in step 466 of Figure 6c. For example, if  $S1 = 0.33$ , then the combined relevance value may be multiplied by  $(1 - 0.33) = 0.67$ . In one embodiment, the scaled header relevance value may then be adjusted by adding the first scaling factor S1 to the header relevance value, so that the minimum header relevance value is higher than the maximum text section relevance value. For example, if  $S1 = 0.33$ , then the maximum text section relevance value may be 0.33. By applying step 498, the minimum header relevance value may be 0.34. In one embodiment, after performing steps 496 and 498, a header relevance value R3 may be within the range  $((S1 + 1) \leq R \leq 1.0)$ .

The following is an example of applying one embodiment of a mechanism for calculating the relevance value for a header occurrence and is not intended to be limiting in any way. The eighth row of the index table 402 as illustrated in Figure 5 shows that the term "Anatomy" appears as the second of five words in a header. A first scaling factor  $S1 = 0.33$  and a second scaling factor  $S2 = 0.3$  are to be used, and the results rounded to two significant digits. Applying the steps of Figure 6d-6h:

Step 470 (Figure 6e):

Step 480:  $5 - 2 = 3$

Step 482:  $3 + 1 = 4$

Step 484:  $4 / 5 = 0.8$

Step 472 (Figure 6f):

Step 486:  $1 / 5 = 0.2$

Step 474 (Figure 6g):

Step 490:  $0.8 * 0.3 = 0.24$

Step 492:  $0.2 * (1.0 - 0.3) = 0.14$

Step 494:  $0.24 + 0.14 = 0.38$

Step 476:

Step 496:  $0.38 * (1.0 - 0.33) = 0.2546$

5 Step 498:  $0.2546 + 0.33 = 0.5846$

Step 477:

Round (0. 5846) = 0.58

#### Figures 7a -7c - A mechanism for providing context-sensitive help

10 Figures 7a through 7c are flow diagrams describing embodiments of a mechanism for providing context-sensitive help in an insurance claims processing system. Figure 7a illustrates a high-level view of the entire process, while Figures 7b and 7c give more detail of various steps of Figure 7a.

In Figure 7a, a user may initiate processing of an insurance claim in the insurance claims processing system in step 300. The insurance claims processing may begin at a first processing step, and may continue  
15 through a number of processing steps until the insurance claim has been processed. A next processing step may be determined by the user input at a current processing step. Each processing step may be displayed to the user in one or more pages on a computer display screen.

In step 302, the claims processing system may enter a processing step and display a page for the processing step. In step 304, the context-sensitive help for the page may be invoked. Context-sensitive help for  
20 each processing step may be unique, although content may appear in the context-sensitive help for two or more processing steps. Context-sensitive help may also be unique for each of the one or more pages within a processing step. In step 306, the page for the processing step may be displayed along with the context-sensitive help for the page. In one embodiment, the context-sensitive help for the page may instead be replace the display of the page for the processing step. In one embodiment, the displayed page may occupy substantially the entire  
25 display screen on the display device. In another embodiment that supports windows, the page may be displayed in a window on the display screen. In one embodiment, the page may be divided into two or more panes, the context-sensitive help may be displayed in one or more panes on the page, and the processing step contents may appear in one or more panes on the page.

Figure 7b illustrates step 304 of Figure 7a in more detail. In step 304 of Figure 7a, the context-sensitive  
30 help for the page is invoked. In step 308, items to be searched for in the context-sensitive help system may be determined. In one embodiment, each page in the insurance claims processing system may have a unique code, which may be referred to as a page ID. The page ID for the invoked page may be read. In one embodiment, the page ID may be stored with information describing the page that is read by the claims processing system prior to displaying the page. The information may describe the format and contents of the page. Alternatively, the page  
35 ID may be "hardcoded" into the code of the claims processing system.

The page may include one or more elements that have associated codes. The codes for the one or more elements on the page may also be read. In one embodiment, the elements on the page may be system-supplied  
40 "answers" to questions posed to the user during the claims processing. In one embodiment, the answers may be classifications for injuries, anatomical regions, etc. used during injury claims processing. In another embodiment, instead of reading codes for the elements, the text of the elements may be read.

In step 310, the insurance claims processing system may search one or more index tables as illustrated in Figure 6 for entries including the page ID that may be used to locate help entries for the page in one or more help tables as illustrated in Figures 4 and 5. The index table may also be searched for entries for the elements of the page. In one embodiment, a code for an element is used to search the one or more index tables for entries. In another embodiment, the text of the elements is used to search the one or more index tables for entries.

In step 312, one or more entries may be located in the one or more index tables. In one embodiment, there will be at least one entry located for the page ID in the one or more index tables. In one embodiment, if elements of the page have an associated code, there will be at least one entry located for each code in the one or more index tables. In one embodiment, each entry in the one or more index tables may indicate an occurrence in the one or more documents included in the help database for the insurance claims processing system of the page ID, code, or term included in the index table entry.

In step 314, entries may be located in one or more help tables using information from the entries located in the one or more index tables for the page ID and any elements of the page. The help tables may be substantially similar to the tables illustrated in Figures 4 and 5. In one embodiment, each entry in an index table includes an object ID. The one or more help tables may be searched for occurrences of the object ID in each located entry. In one embodiment, the object ID may include information used to determine which help table the object ID is found in. For example, the last two digits of the object ID may indicate if the object ID is an entry for a header table similar to the one illustrated in Figure 4 or for a text table similar to the one illustrated in Figure 5. In one embodiment, there may be one entry in the help tables for each object ID. In one embodiment, a particular object ID may be included in one or more entries in an index table.

Figure 7c illustrates step 306 of Figure 7a in more detail. In step 306 of Figure 7a, the context-sensitive help for the page may be displayed. In step 320 of Figure 7c, the located help table entries may be ranked by relevance. In one embodiment, the entries in the index table may include a relevance value. The located help table entries may be ranked from highest relevance to lowest relevance. Entries with the same relevance may be ranked by any of several methods, including, but not limited to: alphabetic ranking and order of appearance in the index table. In one embodiment, the located help table entries may be listed without ranking for relevance. In one embodiment, any entries found for the page code may be displayed at the top of the list regardless of the relevance ranking of the entry. Entries for other codes in the page may then be ranked below the page code entry or entries in order of relevance. In one embodiment, when there is more than one term being searched for, located entries may be first ranked on the number of search terms the entries include. A header or text section of a document may include one or more occurrences of the page ID, codes, or terms being searched for. Entries that include more search terms may be ranked higher than entries with fewer search terms. The entries within the ranking categories may then be ranked by relevance within the category. Thus, entries with lower relevance, but more search terms, may appear higher in the overall ranking than entries with higher relevance, but fewer search terms.

In step 322, information from the located help table entries may be displayed. In one embodiment, the entries may be displayed in the order of relevance as determined in step 320. The help table entries may include portions of text from one or more documents related to insurance claims processing. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

In step 324, information describing the location of the displayed portions of text in the one or more documents may be displayed. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents. The location information may include, but is not limited to: document title, chapter title, and/or number, chapter or section header, section number and/or title, page number, number of occurrences in the section, etc.

In one embodiment, the page display may be split into sections, or panes. In one embodiment, the information from the located help table entries may be displayed in a first pane; the information describing the location in the one or more documents of displayed portions of text may be displayed in a second pane; and the step information may be displayed in a third pane. In one embodiment, separate windows may be used to display the information from the located help table entries, the locations in the one or more documents, and the step information.

Figure 8 - A display screen showing context sensitive help information

Figure 8 illustrates one embodiment of a display screen 200 showing multiple panes, wherein two of the panes comprise context sensitive help information for a step and the elements of the step. In this embodiment, pane 202 may display a step in the processing of an insurance claim. One or more step elements 203 may be displayed in pane 202. One or more context sensitive help occurrences for the step may be displayed in pane 230. One or more context sensitive help occurrences for the elements in the step may also be displayed in pane 230. Locations for the context sensitive help occurrences displayed in pane 230 may be displayed in pane 232. In one embodiment, a location may be displayed as a chapter hierarchy of the document in which the occurrence is found.

Figure 9 - A mechanism for searching for insurance claims processing terms

Figure 9 is a flow diagram illustrating one embodiment of a mechanism for searching for insurance claims processing terms. In one embodiment, the search mechanism may use the same one or more index tables and one or more help tables as are used in the mechanism for providing context sensitive help as described in Figures 7a-7c.

A user may first initiate processing of an insurance claim in the insurance claims processing system. The insurance claims processing may begin at a first processing step, and may continue through a number of processing steps until the insurance claim has been processed. A next processing step may be determined by the user input at a current processing step. Each processing step may be displayed to the user in one or more pages on a computer display screen. The claims processing system may enter a processing step and display a page for the processing step.

A search interface may be presented to the user on the display screen. In one embodiment, the search interface may be displayed in response to user action. For example, the user may activate a button or menu item to cause the system to display the search interface. The search interface may be presented in any of various forms. For example, a text entry box may be displayed that accepts one or more terms or phrases to be searched for, and a button may be displayed that initiates a search when activated by the user. The text entry box may also accept special characters, for example, quotation marks around a group of terms that are to be searched for as a phrase. The text entry box may also accept logical operators; for example, an AND operator may be entered between two terms to indicate that help table entries are to be searched for that include both terms.

In step 350, the user may enter in the search interface one or more terms to be searched for in the help database for the insurance claims processing system. The user may then initiate the search for the one or more terms. In step 352, the insurance claims processing system may search the one or more index tables for entries including at least one of the one or more terms.

5 In step 354, one or more entries may be found in the one or more index tables that include at least one of the one or more terms. In step 356, the located entries in the index table may be used to locate help entries in the one or more help tables that include at least one of the one or more terms. In one embodiment, each entry in an index table includes an object ID. The one or more help tables may be searched for occurrences of the object ID from each of the located entries.

10 In step 358, the located help table entries may be ranked by relevance. In one embodiment, the entries in the index table may include a relevance value. The located help table entries may be ranked from highest relevance to lowest relevance. Entries with the same relevance may be ranked by any of several methods, including, but not limited to: alphabetic ranking and order of appearance in the index table.

In one embodiment, more than one term may be searched for, and located entries may be first ranked on  
15 the number of search terms the entries include. Entries that include more search terms may be ranked higher than entries with fewer search terms. For example, if the user enters three terms to be searched for, entries that include all three of the search terms may be ranked first, then entries that include two of the search terms, and finally entries that include just one of the search terms. The entries within the ranking categories may then be ranked by relevance within the category. Thus, entries with lower relevance, but more search terms, may appear higher in  
20 the overall ranking than entries with higher relevance, but fewer search terms.

In one embodiment, if there is more than one term being searched for, occurrences including more than one of the search terms may be listed once, rather than listing the occurrence for each search term included in the occurrence. A relevance value of occurrences including more than one search term may be calculated from the relevance value of each of the terms included in the occurrence. For example, if a search is initiated for the terms  
25 "Anatomy" and "Body", and the index table 402 illustrated in Figure 5 is searched, the term "Anatomy" will be located in the third entry in the table, and the term "Body" in the fourth entry. The third and fourth entries have the same object ID 140, indicating that these occurrences are from the same text section. In one embodiment, only one occurrence may be displayed on the display screen for the text section entry in text table 406 indicated by the object ID 140 of entries two and three in index table 402. In one embodiment, the relevance value for an  
30 occurrence including more than one term may be calculated using the following method:

Relevance Value = Sum of Occurrence Relevance Values / Number of Occurrences

Applying this method to the relevance values 152 of the third and fourth entries in index table 402:

$$(0.28 + 0.25) / 2 = 0.265$$

In one embodiment, the calculated relevance value for the occurrence including the two search terms (0.265) may then be rounded to 0.27. In one embodiment, the calculated relevance value may then be used in ranking the  
40 occurrence including two terms against other occurrences including two terms.

In step 360, information from the located help table entries may be displayed. In one embodiment, the entries may be displayed in the order of relevance as determined in step 358. The help table entries may include portions of text from one or more documents related to insurance claims processing that include one or more of the one or more search terms. Some help table entries may include section headers from the one or more documents. Some help table entries may include text from the bodies of sections of the one or more documents. Some help entries may include glossary information from the one or more documents. Other entries may include text from other portions of the one or more documents. In one embodiment, the relevance value may also be displayed.

In step 362, information describing the location of the displayed portions of text in the one or more documents may be displayed. This information may allow the user to look up (electronically or manually) located occurrences in the one or more documents. The location information may include, but is not limited to: document title, chapter title, and/or number, chapter or section header, section number and/or title, page number, number of occurrences in the section, etc.

In one embodiment, the page display may be split into sections, or panes. In one embodiment, the information from the located help table entries may be displayed in a first pane; the information describing the location in the one or more documents of displayed portions of text may be displayed in a second pane; and the step information may be displayed in a third pane. In one embodiment, separate windows may be used to display the information from the located help table entries, the locations in the one or more documents, and the step information.

#### Figure 10 - A display screen showing search results information

Figure 10 illustrates one embodiment of a display screen 200 showing multiple panes, wherein two of the panes comprise search results information. In this embodiment, pane 202 may display a page for a step in the processing of an insurance claim. The search term "cuboid" 208 has been previously entered by the user, and a search was initiated and completed.

In pane 204, occurrences of the search terms (located entries in the one or more help tables) may be displayed. Column 210 of pane 204 may display a location where the term is found. In one embodiment, a portion or all of a text section or a portion or all of a header from a document may be displayed in column 210. Column 212 may display a portion or all of a chapter or section title of the document where the occurrence is located. Column 214 may list the search term(s) that appear in the occurrence. In this example, only one term 208 was entered. If multiple search terms are entered, then all search terms that appear in a listed occurrence may be listed in column 214. Column 216 may display the number of search terms found in the occurrence. Column 218 may display the relevance value for the entries. In this example, all displayed entries have the same relevance value (1). Other embodiments may include more or fewer columns displaying the same or other information about the occurrences. In one embodiment, not all located entries may be displayed in pane 204. An interface item or items may be provided to the user to display other located entries. Interface items may be items displayed graphically on the screen (for example, icons) and selectable using input/output devices such as a mouse, joystick, or arrow keys on a keyboard. Interface items may also be keyboard selections such as function keys or key combinations. For example, a button may be provided that allows the user to scroll down the list of located entries in pane 204.



In pane 206, information about the location of the occurrences in pane 204 may be displayed. Column 220 may display chapter numbers and/or chapter headers from the one or more documents in the help database that include one or more of the located occurrences displayed in pane 204. In one embodiment, there may be one entry in pane 206 for each entry in pane 204. Alternatively, there may be one entry in pane 206 for each chapter that includes at least one of the occurrences displayed in pane 204. An interface item or items may be provided to allow the user to display entries not currently displayed in pane 206.

Figure 11 - Hiding context-sensitive help and search results panes

Figure 11 shows the display screen 200 of Figure 10, with one of the search results panes (pane 204) hidden to provide more display area for claims processing information. In this embodiment, pane 206 is moved nearer to the top of the display screen than in the display screen illustrated in Figure 10. Pane 202 displays the page for a step in the processing of an insurance claim. Pane 202 has been expanded to provide more lines for displaying the elements of the step than in the display screen illustrated in Figure 10. Thus, in this example, pane 202 of Figure 11 displays the step element "Injury Description" 220 which was hidden in pane 202 of Figure 10.

An interface item or items may be provided to the user for hiding or showing one or more panes displaying portions of the search results or context-sensitive help. Interface items may be items displayed graphically on the screen (for example, icons) selectable using input/output devices such as a mouse, joystick, or arrow keys on a keyboard. Interface items may also be keyboard selections such as function keys or key combinations. For example, a function key or key combination may be provided to toggle between hiding and showing pane 204.

The example illustrated in Figure 11 is of a display with search results. In one embodiment, the hiding and showing of panes as described above may be applied to displays with panes displaying context-sensitive help for a step.

The ability to hide portions of search results or context-sensitive help may be useful in insurance claims processing systems with displays that have a limited amount of display space. For example, displays on some terminals may be limited to 24 lines of text. If the search results are displayed in two panes each using eight lines, hiding one of the panes may double the display space for the step elements from eight to sixteen lines.

Figure 1d: A Distributed Computing Environment

Figure 1d is a network diagram of an illustrative distributed computing environment which is suitable for implementing various embodiments. The distributed computing environment may include various server systems 70A and client systems 80A connected by a network 55A. Other networkable devices such as printers 90A may also be connected to the network 55A. The servers 70A, clients 80A, and other devices may be geographically dispersed. A single computer system may server as both a server and client.

The network 55A may be a local area network or wide area network, and may include communications links including, but not limited to: Ethernet, token ring, Internet, satellite, wireless, telephone, cable, DSL, and other suitable pathways. As used herein, "the Internet" includes one or more substantially global networks which are generally accessible by the public (i.e., they are not proprietary or not largely characterized by controlled access). Various sources of data on the Internet may be accessed through protocols such as HTTP (HyperText Transport Protocol), HTTPS (Secure HyperText Transport Protocol), FTP (File Transfer Protocol), Telnet, NNTP (Network News Transport Protocol), SMTP (Simple Mail Transfer Protocol), and other suitable protocols.

Transmission of data over the Internet is typically achieved through the use of TCP/IP (Transmission Control Protocol/Internet Protocol) packets.

Figures 2aA and 2bA: An Insurance Claims Processing Server Computer Architecture and an Insurance Claims Processing Client Computer Architecture

Figure 2aA is an illustration of an insurance claims processing server computer architecture according to one embodiment. Figure 2bA is an illustration of an insurance claims processing client computer architecture according to one embodiment. The insurance claims processing server 70A may include a computer system 20aA with a memory 30aA. The insurance claims processing client 80A may include a computer system 20bA with a memory 30bA. The term "computer system" as used herein generally includes the hardware and software components that in combination allow the execution of computer programs. The computer programs may be implemented in software, hardware, or a combination of software and hardware. A computer system's hardware generally includes a processor, memory media, and Input/Output (I/O) devices. As used herein, the term "processor" generally describes the logic circuitry that responds to and processes the basic instructions that operate a computer system. The term "CPU" is used synonymously with "processor" herein. The term "memory" is used synonymously with "memory medium" herein. The term "memory medium" is intended to include an installation medium, e.g., a CD-ROM, or floppy disks, a volatile computer system memory such as DRAM, SRAM, EDO RAM, Rambus RAM, etc., or a non-volatile memory such as optical storage or a magnetic medium, e.g., a hard drive. The memory medium may comprise other types of memory as well, or combinations thereof. In addition, the memory medium may be located in a first computer in which the programs are executed, or may be located in a second different computer that connects to the first computer over a network 55. In the latter instance, the second computer provides the program instructions to the first computer for execution. In addition, the computer system may take various forms, including a personal computer system, mainframe computer system, workstation, network appliance, Internet appliance, personal digital assistant (PDA), television system or other device. In general, the term "computer system" can be broadly defined to encompass any device having a processor that executes instructions from a memory medium.

The memory medium preferably stores a software program or programs for processing insurance claims as described herein. The software program(s) may be implemented in any of various ways, including procedure-based techniques, component-based techniques, and/or object-oriented techniques, among others. For example, the software programs may be implemented using a rule-based development tool such as PLATINUM Aion™ available from Computer Associates International, Inc. In one embodiment, PLATINUM Aion™ may combine business rule and object-oriented technologies to create and maintain complex, knowledge-intensive applications. Software developed with PLATINUM Aion™ may employ an Aion™ programming language for automation of processes which may use hundreds or thousands of business rules from a knowledge base. An Aion™ inference engine may automatically determine which rules to execute, when, and in what order. In various other embodiments, the software program may be implemented using other technologies, languages, or methodologies, as desired. A CPU, such as the host CPU, executing code and data from the memory medium includes a means for creating and executing the software program or programs according to the methods, flowcharts, and/or block diagrams described below.

Various embodiments further include receiving or storing instructions and/or data implemented in accordance with the description herein upon a carrier medium. Suitable carrier media include memory media or storage media such as magnetic or optical media, e.g., disk or CD-ROM, as well as transmission media or signals

such as electrical, electromagnetic, or digital signals, conveyed via a communication medium such as network 55A and/or a wireless link.

A computer system's software generally includes at least one operating system, a specialized software program that manages and provides services to other software programs on the computer system. Software may also include one or more programs to perform various tasks on the computer system and various forms of data to be used by the operating system or other programs on the computer system. The data may include but are not limited to databases, text files, and graphics files. A computer system's software generally is stored in non-volatile memory or on an installation medium. A program may be copied into a volatile memory when running on the computer system. Data may be read into volatile memory as required by a program.

A server may be defined as a computer program that, when executed, provides services to other computer programs (referred to as clients) executing in the same or other computer systems. The computer system on which a server program is executing may also be referred to as a server, though it may contain a number of server and client programs. In the client/server model, a server is a program that awaits and fulfills requests from client programs in the same or other computer systems.

The insurance claims processing server 70A may further include a display device 50aA connected to the computer system 20aA and an insurance database 40A residing on an internal or external storage. As used herein, a "database" may include a collection of information from which a computer program may select a desired piece of data. As used herein, an "insurance database" is used as a synonym for a "database" when included in or coupled to an insurance claims processing system. Computer system 20aA includes memory 30aA configured to store computer programs for execution on the computer system 20aA and a central processing unit (or CPU, not shown) configured to execute instructions of computer programs residing on the computer system 20aA. Insurance claims processing server software 60A may be stored in the memory 30aA. As used herein, an "insurance claims processing program" 60A or "insurance claims processing software" or "insurance claims processing system" may include a software program which is configured to conduct transactions regarding insurance claims, such as by estimating the value of the insurance claims, for example.

The insurance claims processing client 80A may further include a display device 50bA connected to the computer system 20bA. Computer system 20bA includes memory 30bA configured to store computer programs for execution on the computer system 20bA and a central processing unit (or CPU, not shown) configured to execute instructions of computer programs residing on the computer system 20bA. Insurance claims processing client software 68A, such as web browser software, may be stored in the memory 30bA.

The insurance claims processing server 70A may be connected to network 55A. The insurance claims processing server software 60A and insurance database 40A may be distributed among the one or more servers 70A to provide a distributed processing system for insurance claim transactions. In other words, an insurance claim processing transaction being processed by the insurance claim processing system may be routed to any server based upon the workload distribution among servers 70A at the time of the transaction. Insurance claim processing system servers 70A may be located on a local area network or may be geographically dispersed in a wide area network.

One or more clients 80A may also be connected to network 55A. Clients 80A may reside at one or more claim processing units within the insurance company. In a wide area network, clients 80A may be geographically dispersed. Clients 80A may be used to access one or more insurance claim processing system servers 70A and associated insurance databases 40A. An insurance claim processing employee may use a client 80A to access the

insurance claim processing system and execute insurance transactions. An employee may also use a client 80A to enter insurance claim inputs into the insurance claim processing system. As shown in Figure 1d, one or more printers 90A may also be connected to network 55A for printing documents associated with insurance claim transactions.

5 The insurance claims processing server 70A and client 80A may be used by an Insurance Company for various embodiments of a system and method for processing insurance claims. As used herein, an Insurance Company (IC) includes a business organization that provides insurance products and/or services to customers. More particularly, the insurance products may pertain to providing insurance coverage for accidents and the trauma-induced bodily injuries that may result due to the accident. Examples of trauma-induced bodily injuries  
10 may include, but are not limited to: loss of limb(s); bone fractures; head, neck and/or spinal injury, etc.

In one embodiment, on receiving a trauma-induced bodily injury, a customer may file an insurance claim (IC) with his/her insurance organization to cover medical and other accident-related expenses. An IC may utilize a computer-based insurance claim processing system to process insurance claims. In one embodiment, the processing may include estimating a value, including a bodily injury general damages amount, associated with the  
15 filed insurance claim.

As used herein, an IC business transaction may be defined as a service of an IC. Examples of business transactions include, but are not limited to: insurance transactions such as filing of claims, payment of claims, application for insurance coverage, and customized benefits, etc. Business transactions may also include services related to customers, insurance providers, employers, insurance agents, investigators, etc.

20 As used herein, an IC insurance claim processing includes a series of instructions executed by a computer system 70A and/or 80A for processing an IC's business transactions. A claim processing system may include one or more processing tasks. A processing task may include a sequence of one or more processing steps or an ordered list or a structured list of one or more processing steps which associated with the business transaction to be processed by the claim processing system. In one embodiment, the sequence of steps may be  
25 fixed. In another embodiment the sequence of steps may be established dynamically, in real-time. In one embodiment, the sequence of one or more steps may include an initial step, a final step, one or more intermediary steps, etc. In one embodiment, an IC user may select steps to process an insurance claim in a sequential manner. In another embodiment, the IC user may select steps to process an insurance claim in a random or arbitrary manner. Examples of processing steps may include, but are not limited to: receiving an input from a user of the  
30 IC insurance claim processing system 70A and/or 80A, reading a value from a database, updating a field in a database, displaying the results of a business transaction on a computer screen, etc.

In one embodiment, the insurance claim processing system 70 and/or 80 utilizes object-oriented technology to process insurance claims. In another embodiment, processing of insurance claims may utilize traditional programming languages and databases to achieve the same result. Insurance objects may be defined to  
35 represent or model real-world business features of insurance products and services. Examples of insurance objects may include, but are not limited to, objects representing the following: an insurance claim; an accident report; a settlement; an estimated claim; IC service facilities, customers, and employees; business process such as a new insurance application and calculation of a premium; interfaces to external insurance organizations; work tasks such as calculations, decisions, and assignments; temporal objects such as calendars, schedulers, and timers; and elemental  
40 data necessary to accomplish work tasks such as medical costs, risk factors, etc.

An insurance object may be represented on the computer screen 50aA and/or 50bA by a graphical icon or by a display listing the properties of the insurance object in graphic and/or alphanumeric format. An insurance claim object may be configured to gather and evaluate data for processing a filed insurance claim and to automatically make decisions about the insurance claim. The one or more processing steps associated with the processing of an insurance claim may also be configured as one or more processing step objects. In one embodiment, a display screen, which also may be referred to as a page, may be associated with a processing step. The display screen may also be represented as an object. Each display screen object may include a property to point to a previous display and another property to point to a next display screen. Each property, e.g. the next display pointer on a display screen object, may be changed dynamically by using methods associated with the display screen object. One display screen object may serve as the starting point for processing insurance claims. In one embodiment, the starting point for processing insurance claims may include acquiring an insurance claim identification number from an IC system user.

In one embodiment, during the processing of an insurance claim, a business rule and/or an IC system user input may determine that the insurance claim processing needs the execution of additional steps or tasks to continue the processing of the claim. The IC system user may provide inputs to the insurance claims processing server software 60A at any display screen associated with a step included in a Table of Contents. The insurance claim processing software may dynamically modify the number of steps and/or the sequence of their execution to complete the claim processing transaction. An IC system user working at a client system 20bA may then iterate through the claim processing steps and arrive at an estimated value for the insurance claim.

In one embodiment, upon startup, the server software 60A and browser software 68A may provide a graphical user interface to display claims processing related information on display device 50aA and/or 50bA. It may collect user inputs which are associated with insurance claims and entered by using user input devices 52aA and/or 52bA. It may process the user inputs, access an insurance database 40A, use the contents of the insurance database 40A to estimate the insurance claim, and store it in memory 30aA and/or 30bA and/or insurance database 40A. The browser 68A may display a value of the estimated insurance claim on display screen 50bA. A user may view the display of the estimated insurance claim on display screen 50bA and may interactively make modifications, additions, and deletions to the estimated insurance claim.

Systems 20aA and 20bA may also include one or more user input devices 52aA and 52bA, such as a keyboard, for entering data and commands into the insurance claim program 60A. It may also include one or more cursor control devices 54aA and 54bA such as a mouse for using a cursor to modify an insurance claim viewed on display screen 50aA and/or 50bA. In response to the updating of the estimated insurance claim, the insurance claim server software 60A may store the updated insurance claim in the insurance database 40A.

#### Figure 3aA: An Insurance Claims Processing Server Software Architecture

Figure 3aA is an illustration of an insurance claims processing server software 60A architecture for a single client according to one embodiment. The server software 60A may include an insurance processing rules engine 61A. As used herein, a "rules engine" may include an expert system which is operable to produce an output as a function of a plurality of rules. A rules engine, in one embodiment, may include an expert computer system which utilizes and builds a knowledge base developed in the form of business rules and/or formulas to assist the user in decision-making. In one embodiment, the rules engine 61A is operable to generate insurance claim assessment questions to be displayed to a user during an insurance claim consultation session. The rules engine 61A may also be operable to estimate a value of an insurance claim as a function of insurance claim

assessment data entered by a user in response to the insurance claim assessment questions. In one embodiment, the insurance claim may include a bodily injury claim, the insurance claim assessment questions may include bodily injury claim assessment questions, the insurance claim assessment data may include bodily injuries and treatments thereof.

5 In one embodiment, the rules engine 61A is capable of processing rules associated with assessing bodily injury damages claims. A rules engine 61A, in one embodiment, comprises an expert computer system which utilizes and builds a knowledge base developed in the form of business rules to assist the user in decision-making. It allows the insurance companies to capture the knowledge base of their experts by defining business rules. Once created, the expertise may be used in processing many transactions, including assessing bodily injury damages .  
10 claims. The business rules enable claim-processing professionals to be assisted by industry experts to evaluate legal, medical, insurance conditions before arriving at a valuation of an insurance claim.

In various embodiments, the rules engine 61A may be implemented and executed on various computing platforms such as personal computers and mainframes. The rules engine 61A may comprise a rules engine executable file on these platforms. In various embodiments, the rules engine may be accessed through various  
15 user interfaces, such as a graphical user interface for a rules engine 61A which is executable on a Microsoft™ Windows™-based server 70A. In one embodiment, the rules engine 61A may be developed using a commercial rule-based development tool such as PLATINUM Aion™, which is available from Computer Associates International, Inc. In one embodiment, the rules may be customized to meet the requirements of a particular insurance company.

20 Business rules, often referred to simply as rules, may include executable computer program instructions. The rules include computer commands or logical instructions to achieve a certain function. For example, rules may guide an assessment or estimate of bodily injury general damages. Each rule, in one embodiment, includes a premise followed by one or more resulting actions. For example, in one embodiment, a business rule may state 'If patient requires hospitalization after emergency care treatment then the trauma severity level should be classified  
25 as major'. In this case, the premise is 'patient requires hospitalization after emergency care treatment'. The resulting action is 'trauma severity level should be classified as major'. In one embodiment, the insurance claim processing server 70A may include several thousand business rules. The rules may be executed or fired, under the control of the insurance claim processing software, based on certain events, user inputs, etc. Only pertinent rules, i.e., a subset of all the available rules, are typically selected and executed for processing a specific bodily injury  
30 damages claim. On execution of the plurality of rules which are applicable to a specific bodily injury claim consultation session, the insurance claim processing server software 60A may generate a consultation report which summarizes an assessment and/or estimate of the bodily injuries claim.

The rules may be stored in and retrieved from an insurance database 40A. The type of information stored and/or retrieved may include, but not be limited to, business objects, tables, rules, software source code,  
35 executable software, etc. In one embodiment, the database may include a relational database. In another embodiment, the database 40 may include an object-oriented database.

In one embodiment, the insurance claims processing server software 60A may include adapter software 62A which may provide access to the rules engine for one or more other computer-based applications or subsystems, such as an internet information server 64A. In one embodiment, the adapter software 62A provides  
40 an application programming interface (API) to the rules engine 61A. The adapter software 62A is discussed in greater detail with reference to Figure 4A.

In one embodiment, the insurance claims processing server software 60A may include a web server such as an internet information server (IIS) 64A. As used herein, a "web server" includes a system for supplying clients with access to web pages, such as by sending the pages to clients via an appropriate protocol. In one embodiment, a web server may also be operable to generate the web pages dynamically. As used herein, a "web page" includes a block of information which is configured to be displayed by a web browser 68A. As used herein, a "web browser" or "browser software" includes software which is configured to receive and display web pages. Examples of web browsers include Internet Explorer™ available from Microsoft™ Corporation and Netscape Navigator™ available from Netscape Communications Corporation. Typically, a web page is configured to be displayed in a single window in a web browser, wherein the window may be scrolled to view off-screen elements of the web page. Web pages may include various combinations of text, graphics, audio content, video content, and other multimedia content. A web page is often encoded in a language such as HTML (HyperText Markup Language). Web pages may be viewed in a browser on the same computer system on which the server 64A or web pages reside. Web pages may also be transmitted to a client computer system over a network 55A, such as via the HyperText Transport Protocol (HTTP) 56. Where the network 55A includes the Internet, the web pages may be transmitted via standard protocols such as TCP/IP.

In one embodiment, the internet information server (IIS) 64A may include a commercial product such as Microsoft™ Internet Information Server available from Microsoft™ Corporation. In one embodiment, the server 64A may include an active server pages (ASP) controller 65A which is operable to generate web pages dynamically. In other words, the web pages delivered by the internet information server 64A may be built in real time by the ASP controller 65A upon a request for a page by a browser 68A. Active server pages may include dynamic web pages which are created, for example, by blending HTML and server-side scripting. Active server pages may be dynamically constructed to include insurance claim assessment questions and other user interface elements by starting from a template.

The web server 64A may be configured to generate a plurality of web pages comprising the insurance claim assessment questions. The web browser 68A may then be configured to display the plurality of web pages comprising the insurance claim assessment questions. The web browser 68A may then be configured to receive insurance claim assessment data entered by a user in response to the insurance claim assessment questions during an insurance claim consultation session and send the insurance claim assessment data to the web server 64A. In one embodiment, the web server 64A is further configured to receive the insurance claim assessment data from the web browser 68A and send the insurance claim assessment data to the rules engine 61A. The rules engine 61A may be further configured to generate and send the estimate of the value of the insurance claim to the web browser 68A through the web server 64A. The web browser 68A may be further configured to display the estimate of the value of the insurance claim received from the rules engine 61A through the web server 68A.

In one embodiment, the web server 64A and web browser 68A may be located on separate computer systems which are communicatively coupled through a network 55A. In another embodiment, the web server 64A and web browser 68A may be located and executed on a single computer system.

Figure 3bA: An Insurance Claims Processing Server Software Architecture

HTTP is considered to be a stateless internet access protocol. In other words, each request from a web browser 68A to a web server 64A is essentially a request-response interaction. Therefore, when a web browser 68A requests a web page, for example, the web server 64A may complete the interaction between the two by sending the page to the browser 68A. However, a consultation session conducted by a user through a web

browser 68A which communicates with the rules engine 61A may include many successive interactions through the web server 64A. It would tend to be inefficient to start a rules engine executable file for each of the many interactions that may take place during a single consultation session.

Therefore, IIS sessions may be used to maintain resources and state for each of a plurality of users.

Figure 3bA is an illustration of an insurance claims processing server software architecture for multiple clients 68aA, 68bA, 68cA according to one embodiment. The first time a user connects to a suitable web site provided by the server 64A, a rules engine may be executed or started for that particular user and then "held" in an IIS session for that user. Figure 3bA illustrates an example including three browsers 68aA, 68bA, 68cA which correspond to and communicate with respective rules engines 61aA, 61bA, 61cA. Each IIS session may include an individual ASP controller 65aA, 65bA, 65cA. Each rules engine 61aA, 61bA, 61cA may therefore be linked to its corresponding ASP controller 65aA, 65bA, 65cA through individual adapter software 62aA, 62bA, 62cA.

#### Figure 4A: Adapter Software

Figure 4A is an illustration of adapter software between a rules engine and a web server according to one embodiment. The adapter software 62A may include one or more components which permit software such as applications or other components to communicate with the rules engine 61A. For example, the adapter software may provide methods to start and communicate with a rules engine executable file 61A.

As used herein, a component is a software object which includes definitions of method of communication for that software object. Typically, components are implemented according to a component architecture specification such as the Component Object Model (COM) or Distributed Component Object Model (DCOM) promulgated by Microsoft™. The component architecture specification for COM enables applications and components which follow the specification to pass data, commands, and other information back and forth. A COM interface may be said to "wrap" an object, server, or other piece of software if that COM interface defines methods of interaction or communication with that object, server, or piece of software.

In one embodiment, the adapter software 62A may include one or more COM components 63bA and a dynamic link library (DLL) 63aA. As used herein, a DLL may include a library of executable functions or data that can be used by an application such as a Microsoft™ Windows™-based application. Typically, a DLL provides one or more particular functions, and a program may access those functions by creating either a static or dynamic link to the DLL. A static link remains constant during program execution, while a dynamic link is created by the program as needed. In one embodiment, the DLL 63aA may provide a lower-level interface to the functions and methods of the rules engine 61A. For example, the DLL 63aA may take advantage of published protocols for accessing a rules engine implemented with a commercial system such as PLATINUM Aion™. In one embodiment, the DLL 63aA may be provided by the supplier of the commercial system for developing a rules engine.

The COM component(s) 63bA may then provide a higher-level interface to the DLL 63aA, which in turn may provide an interface to the rules engine 61A. In other words, the "business intelligence" may be confined to the rules engine 61A and DLL 63aA, and the COM component(s) 63bA may expose an interface which permits other pieces of software to convert data, requests, and other parameters to function calls provided by the DLL 63aA. In one embodiment, the COM component(s) 63bA may include methods including, but not limited to, the following: setListParameter, setSingleParameter, getNextMessage, lastErrorMessage, sendMessage, terminateSession, transactMessage, getListParameter, getSingleParameter, startServerSession, and startRefsysSession. Appropriate parameters may be defined for each method.



Figure 5A: Transmission of Data Between a Web Server and a Web Browser

Figure 5A illustrates the transmission of data between a web server and a web browser according to one embodiment. Each ASP controller 65A may be a web-specific COM component or components that may run in a process space associated with the IIS 64A. These components may be operable to start, stop, and send data 69A (such as insurance claim consultation data entered in response to insurance claim consultation questions) to the rules engine 61A. These components may also be operable to receive data (such as insurance claim consultation questions and elements of the user interface) from the rules engine 61A for inclusion in one or more web pages 67A. Generally, these components are configured to translate data between HTML on the IIS 64A side and the interface exposed by COM components 63bA on the other side. These components may include functionality such as data validation (e.g., determining if datatypes of entered data are valid). The components may also ensure that the state of the interactions or "conversation" between a rules engine and a browser is preserved, as discussed in greater detail with respect to Figure 4bA and Figure 9A.

In one embodiment, the ASP controller 65A may include at least two COM components: one which handles interactions between a web browser 68 and the rules engine executable file, and another which handles interactions between the web browser 68A and a reference system or help system executable file. The reference system executable file may provide the user with detailed assistance in conducting an insurance claim consultation session.

In one embodiment, the COM component(s) for accessing the reference system may include methods including, but not limited to, the following: addedRefsysID, initializeContentsGraphs, startSessionIfNecessary, MemberOftrueHierarchyIds, lastSearchText, lastSelectedChapterObjectId, terminateSession, getFirstMessage, pageHasError, getListParameter, chapterWasSelected, writeRefsysContents, writeContextContents, writeSearchResults, writeHelpTextAsHTML, contextHelpWasSelected, isSessionStarted, searchHitWasSelected, mergeLostBoys, searchWasSelected, and iisSessionId. Appropriate parameters may be defined for each method.

In one embodiment, the COM component(s) for accessing the rules engine 61A may include methods including, but not limited to, the following: terminateSession, startSessionIfNecessary, writePredisplayHtml, handleExitProcessing, getFirstMessage, pageToShow, errorMessage, pageHasError, pageWasPosted, doPageTransaction, getSingleParameter, getListParameter, getListParameterNoTrim, debugIt, formatAdsDate, hasSaveButton, hasBackButton, hasNextButton, hasContentsButton, hasCommentsButton, hasUnknownButton, hasReportButton, claimKeyFormat, statusMessage, iisSessionId, and isSessionStarted. Appropriate parameters may be defined for each method.

Figure 6A: Browser-based User Interface

Figure 6A illustrates an example of a browser-based user interface for the insurance claims processing system according to one embodiment. The browser window 100A may be displayed in a display device 50bA coupled to a client computer system. Typically, a web browser includes a set of standard navigation commands. As shown in Figure 6A, examples of these commands may include "back" 110A to move to the previously visited page, "forward" 112A to move to the page previously visited before selecting "back," "reload" 114A to obtain and redisplay the current page from the server, and "home" 116A to move to a previously designated home page. These standard navigation commands may be made available to the user as menu items and/or as buttons or other GUI elements. A button may be "pushed," often by a mouse click or appropriate keyboard key, to initiate the command supplied by the button.

The browser page 104A may include an active server page or other HTML-encoded page supplied by the web server 64A. The page 104A may include one or more specialized navigation commands. In one embodiment, these specialized navigation commands may be displayed as buttons or other GUI elements. In one embodiment, the specialized navigation commands may include, for example, “save” 120A to save the status of a consultation session, “help” 122A to access a reference system for insurance claim processing, “exit” 124A to safely exit the insurance claim consultation session, “back” 130A to safely move to a previous page of the insurance claim consultation session, and “reset” 132A to reset the proper state of the browser page 104A. The reset command is further described with reference to Figure 9A.

Insurance claim assessment data and/or insurance claim assessment questions 140A may also be displayed in the browser page 104A. For example, for a given step in the insurance claim consultation session, one or more questions may be asked regarding bodily injuries and/or treatments thereof. A set of acceptable answers (i.e., insurance claim assessment data) may be supplied to the user, such as with a menu or series of check boxes. The user may then select from the possible answers and enter the insurance claim assessment data. The set of acceptable answers may be dynamically generated by the rules engine based upon answers to previous questions.

Figure 7A: A Method of Developing a Web-Based Insurance Claims Processing System

Figure 7A is a flowchart illustrating a method of developing a web-based insurance claims processing system according to one embodiment. The steps shown in Figure 7A may be performed in various orders according to various embodiments. In step 200A, a rules engine may be developed or otherwise provided. As discussed with reference to Figure 3aA, the rules engine may be configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user in response to insurance claim assessment questions.

In step 202A, the rules engine may be wrapped with a component interface in accordance with a component architecture specification. Component interfaces are discussed in greater detail with reference to Figures 4A and 5A. The component interface may include one or more definitions of methods of communication or other access to the rules engine, such as by a web server. The component architecture specification may include a Component Object Model (COM) specification.

In step 204A, a web server may be provided, wherein the web server which is configured to generate a plurality of web pages which are viewable by a web browser. The methods of communication in the component interfaces may be operable to transmit the insurance claim assessment data from the web server to the rules engine and operable to transmit the insurance claim assessment questions from the rules engine to the web server.

Figure 8A: A Method of Hosting a Web-Based Insurance Claims Processing System

Figure 8A is a flowchart illustrating a method of hosting a web-based insurance claims processing server with various pricing models according to one embodiment. In step 250A, an insurance claim processing server may be hosted. As used herein, “hosting” may include installing, maintaining, and/or otherwise providing client access to a server. The insurance claim processing server may be configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user during an insurance claim consultation session. In one embodiment, the insurance claim processing server may include a rules engine and a web server, and the client software may include a web browser. The web server may be operable to generate web pages and receive responses and requests from the web browser to enable communication between the rules engine and the web browser.

In step 252A, client software such as a web browser may be provided to a user such as an insurance company. In one embodiment, the client software may include commercial, off-the-shelf web browser software which may already be in use by an insurance company and its employees who seek to access to the insurance claim processing server. The client software may be operable to receive the insurance claim assessment data entered by the user and send the insurance claim assessment data across a network to the insurance claim processing server. The insurance claim processing server may be operable to send the estimate of the value of the insurance claim to the client software across the network. In one embodiment, the network may include the Internet.

In step 254A, the user may be charged for access to the insurance claim processing server through client software according to a pricing model. Various pricing models may be used with various embodiments of the hosting system and method. The pricing model may include a fee for each of a plurality of insurance claim consultation sessions conducted by the user. The pricing model may include a fee for each fixed period of access time of access by the user to the insurance claim processing server through the client software. For example, the fixed period of access time may include an hourly multiple, a weekly multiple, a monthly multiple, a yearly multiple, or a multiple of minutes. The pricing model may include a fee which varies directly with an amount of time spent accessing the insurance claim consultation session through the client software.

The user may include an insurance organization having a particular size, and the pricing model varies according to the size of the user. The size of the user may include a function of a quantity of employees of the user, a function of a revenue of the user over a period of time, and/or a function of a quantity of consultation sessions conducted by the user over a period of time. The pricing model may include a pricing discount given to the user after a particular quantity of insurance claim consultation sessions conducted by the user in a particular period of time. The insurance claim consultation session may include one or more insurance claim consultation transactions, and the pricing model may include a fee for each of a plurality of insurance claim consultation transactions conducted by the user during one or more insurance claim consultation sessions.

The method may further include charging additional users for access to the insurance claim processing server through client software according to a same or different pricing model.

#### Figure 9A: A Method of Using a Reset Button for a Web-Based Insurance Claims Processing System

Figure 9A is a flowchart illustrating a method of using a reset button provided by a web-based interface to a web-based insurance claims processing server according to one embodiment. In step 302A, a first page of insurance claim assessment data may be displayed in a browser program executing on a computer system. The browser program may include a web browser program which is operable to read and display web pages. The computer system which executes the browser program may include a client computer system which is communicatively coupled to a server computer system. The server computer system may be operable to generate and send a plurality of pages of insurance claim assessment data to the client computer system.

In one embodiment, in step 304A, one of the specialized navigation commands, such as a forward command, may be selected to advance to a second page of insurance claim assessment data. In another embodiment, the user may advance to the second page by hitting "return" or otherwise instructing the insurance claim processing server to provide a next page in a consultation session. In step 306A, the second page of insurance claim assessment data, including the specialized navigation commands, may be displayed in the browser.

In step 308A, after the second page of insurance claim assessment data is displayed, one of the standard navigation commands, such as the “back” command or button available in a toolbar or menu in a web browser, may be selected to move back to the first page of insurance claim assessment data. The first page of insurance claim assessment data may then be redisplayed.

5 In step 310A, the user may attempt to perform an insurance claim assessment task on the redisplayed first page of insurance claim assessment data. For example, the user may attempt to save a status of an insurance claim consultation by pressing a “save” button in the specialized buttons. The insurance claim consultation may include an interactive determination of an estimate of a value of an insurance claim through the entry of insurance claim assessment data in response to insurance claim assessment questions. The insurance claim assessment task  
10 may include selecting one of the other specialized navigation buttons provided as the user interface by insurance claim processing server. The insurance claim assessment task may also include entering new or modifying existing insurance claim assessment data. Insurance claim assessment data may include information relevant to an estimate of a value of an insurance claim, such as bodily injuries and treatments thereof. The insurance claim assessment data may include bodily injury claim assessment data, and the insurance claim assessment task may  
15 include a bodily injury claim assessment task.

In one embodiment, the state of the “conversation” between the browser and the insurance claim processing server may be preserved by a COM component 66A, as discussed with reference to Figure 5A. In step 312A, therefore, a navigation error may be generated as a result of the attempting to perform an insurance claim assessment task on the first page, when the second page is the “correct” page in the conversation. In one  
20 embodiment, a navigation error message may be generated and displayed to the user as a result of the generating the navigation error. The navigation error message may include an instruction to select a reset command, wherein the reset command is one of the specialized navigation commands.

In step 314A, the user may select the reset command after viewing the navigation error message. In one embodiment, the insurance claim processing server may automatically perform a reset function without user  
25 intervention as a result of the navigation error.

In step 316A, the second page (i.e., the “correct” page) of insurance claim assessment data may then be redisplayed. The user may then perform a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

Figure 2B: Generating a table of contents for an insurance claim

30 Figure 2B is a flow chart illustrating the generation of a table of contents for processing an insurance claim according to one embodiment. In step 100B, the user of an insurance claims processing system 10 may use a client system 80 to initially configure, or set up, all the display screens associated with the insurance claims processing business process. A display screen may be associated with a step included in processing insurance claims. In one embodiment, the business process for processing the insurance claims may utilize an applicable  
35 subset of all display screens. The inclusion or exclusion of a display screen in a table of contents display screen may be based on business rules, user inputs, etc. In another embodiment, the business process for processing the insurance claims may utilize all display screens.

In one embodiment, the configuration of each of the display screens involves defining the properties of the display screen object such as previous display screen pointer, next display screen pointer, source for data  
40 displayed, etc. Additionally, each display screen configuration may require specifying one or more user input fields, defining business rules associated with the processing of data for the display screen, etc. The configuration

of the display screen object may include invocation of methods such as Load\_Screen, Display\_Screen, Validate\_Screen, Save\_Screen, Process\_Screen, etc. In one embodiment, a registry is maintained for all display screen objects. Figure 6B shows a few examples of the properties and methods associated with a display screen object according to one embodiment.

5 In one embodiment, the table of contents (TOC) is a display screen, window, or subset of a screen which shows a roadmap, including one or more applicable steps, for processing an insurance claim. Figure 5B is a screen shot showing one embodiment of a TOC display screen. In one embodiment, the table of contents includes one or more steps required to process insurance claims. Each step has an associated display screen. The table of contents display screen and each step display screen may be configured as an object. The number of steps included in the  
10 table of contents may be dynamically and automatically modified in real-time based on business rules, user inputs, etc. The display screen object for the table of contents includes one or more display screen objects, representing intermediary steps, selected from all display screen objects. Each display screen object may include a property, such as Display\_In\_TOC, which enables the display screen object and corresponding step to be included in the TOC.

15 In step 110B, the user of the insurance claims processing system 10 may initiate the insurance claim processing by specifying a claim number. The claim number may then be received by the insurance claim processing system 10. In step 120B, a determination may be made as to whether the specified claim number exists in the insurance claims processing system 10, such as in the insurance database 40. If it is determined that the specified claim number is a new claim number, then program control is passed on to step 130B. If a matching  
20 record is found in the insurance database 40 for the specified claim number, then program control is passed on to step 150B.

In step 130B, the IC user may set up the claim definition data for a new claim. The setting up of the claim definition data may include providing user inputs through one or more display screens, as defined in the registry for the claim definition data display screen object. Examples of claim definition data provided by the IC  
25 user may include, but are not limited to, claimant demographic data such as name, age, address, phone number, etc., injury code information such as neck, spine, arm, etc., and treatment code information such as emergency care, hospital, outpatient, physical therapy, etc. As the IC user steps through one or more display screens to enter claim definition data, the insurance claim processing software 60 may dynamically modify the properties of the display screen objects by using appropriate methods. For example, as an IC user enters an injury code for a neck  
30 injury, all relevant and associated display screens will be automatically displayed by using the registry for the display screen object and specific properties such as next display screen and previous display screen of the display screen object. On completing the entry of the relevant inputs associated with the definition of the claim, the IC user may submit a request to display the table of contents screen.

If the claim number is found in step 120B, the insurance claim processing software will generate a  
35 request to display the table of contents screen in step 140B. When the IC user has entered the claim definition data for a new claim number in step 130B, a request may be made to display the table of contents screen in step 140B. In step 150B, in response to a request to display the table of contents (TOC) display screen, the insurance claim processing software executes a function or method to generate the TOC display screen. In one embodiment, executing the function to generate the table of contents may include invoking a Create\_TOC\_Entry method for the  
40 TOC display screen object. Figure 3B describes in further detail a flowchart for a function or method to generate the table of contents. In step 160B, the newly generated TOC display is sent to the display screen 50 for display to

the IC user.

Figure 3B: Building a TOC display

Figure 3B illustrates one embodiment of a program or method to build a table of contents display. In step 152B, the insurance claim processing software, in one embodiment, executes a Create\_TOC\_Entry method for all display screen objects which have a "True" entry in a Display\_In\_TOC property field.

In step 154B, the insurance claim processing software 60 verifies that each display screen object has been validated, such as by checking that a Valid\_Screen method has been invoked successfully. In one embodiment, the Function Re\_Evaluate\_All is called prior to displaying the TOC and it validates all pages. This validation process may choose to remove screens from the process because they are no longer appropriate.

In step 156B, a determination is made as to whether the previous screen pointer for the current display screen object is present or is not present. If no previous screen pointer is present, then that display screen object is included in the TOC display screen.

In step 158B, if a previous screen pointer is present and if the source of data property field indicates that the data was entered by a user, then the display screen object is included in the TOC display screen.

In step 159B, the list of display screen objects included with the TOC is returned to the calling function. In one embodiment, the screens are then displayed based on individual logic in their Create\_TOC\_Entry function. In many cases, this is default behavior. But in some cases, such as "Conditional Pages," their Create\_TOC\_Entry logic may choose not to show them because their conditions are not met.

Figure 4B: Using a table of contents for processing an insurance claim

Figure 4B is a flowchart which further illustrates the use of a table of contents for processing an insurance claim according to one embodiment. In step 500B, the processing of the insurance claim may be initiated by initiating a first step, wherein the processing of the insurance claim includes a plurality of steps. The steps may include screens displayed on the display device 50 coupled to a computer system 10. The insurance claim may include a bodily injury claim, and processing the insurance claim to estimate the value of the insurance claim may include processing the bodily injury claim to estimate a bodily injury general damages value. The steps may include steps for entry of information relevant to the estimate of the value of the insurance claim. The information may include, for example, bodily injury treatment information and/or bodily injury damages information.

In one embodiment, for example, the first step may include the user entering a claim identification number as discussed with reference to Figure 2B. In another embodiment, entering the claim identification number may already have taken place, and the "first step" may actually include a step such as the entry of an injury code or treatment code during the consultation session.

In step 510B, one or more of the steps in the processing of the insurance claim may be proceeded through to arrive at an intermediary step. For example, the user may enter injury and/or treatment data in response to questions presented in one or more steps. In step 520B, the intermediary step may then be displayed. As used herein, the intermediary step is any step between the first and final steps in the plurality of steps of processing the insurance claim. Proceeding through the one or more of the steps in the processing of the insurance claim may include entering information relevant to the estimate of the value of the insurance claim in the one or more of the steps. In step 530B, the entered information may be stored in a memory.

In step 540B, a table of contents may be displayed upon the entry of an appropriate command by the user. For example, the user may select a GUI element such as a button or hit a designated keyboard key to display

the table of contents. The table of contents may be generated according to the method discussed with reference to Figure 3B. The table of contents may include an ordered list of the steps associated with the processing of the insurance claim, and the ordered list of steps may include the first step, the intermediary step, and any steps in between the first step and the intermediary step. Therefore, the table of contents may essentially show a “roadmap” of the business process for processing insurance claims. The ordered list of steps may be dynamically modifiable in response to the entry of information in a step. In other words, steps may be added to or deleted from said dynamically modifiable ordered list of steps in response to the entry of information. In various embodiments, the table of contents may be shown as a display screen, window, or other subset of a screen.

In step 550B, the user may be permitted to select one of the steps from the ordered list of steps associated with the processing of the insurance claim in the table of contents. In step 560B, the selected step may then be displayed in response to the user selecting the selected step in the table of contents. In step 570B, in one embodiment, the entered information in the selected step may be modified and stored after selecting the step in the table of contents.

After displaying the selected step, the intermediary step may be redisplayed upon entry of an appropriate command by the user. In one embodiment, in other words, the user may go back to the previously displayed step, either through the table of contents or through entry of a suitable “back” command. The processing of the insurance claim may be continued after redisplaying the intermediary step by permitting the user to enter additional information relevant to the estimate of the value of the insurance claim.

The ordered list of steps in the table of contents may include a final step. In one embodiment, the final step may be selected at any time from the table of contents. The final step may include a consultation report concerning an estimate of the value of the insurance claim. The consultation report may include information related to the estimate of the value of the insurance claim, wherein the estimate may be calculated based on information entered in the first step and in any steps in between the first step and the intermediary step.

In one embodiment, all or substantially all of the steps associated with using the table of contents may be executed within a single session of an application program executing on a computer system. Therefore, the user of the system need not exit the system and restart from the beginning in order to go back to a previously encountered step.

#### Figure 5B: An exemplary table of contents screen display

Figure 5B is a screen shot which illustrates an example of a table of contents display screen according to one embodiment.

#### Figure 6B: Exemplary properties and methods of a display screen object

Figure 6B illustrates exemplary properties and methods associated with a display screen object according to one embodiment.

#### Figure 2C: Identifying critical factors affecting the fair estimate value, included in an insurance claim consultation report.

Figure 2C is a flowchart illustrating a method for identifying one or more contributing factors relevant to an estimate of a value of an insurance claim according to one embodiment. In step 100C, the user of an insurance claims processing system 10 may use a client system 80 to initially configure, define, set up the insurance claim processing system 10. This includes installing and executing the insurance claim processing software or program 60 as well as the insurance database 40. The insurance database 40 may include data for various insurance codes related to injuries, treatments. In one embodiment, insurance codes may include injury codes and treatment codes.

In step 110C, one or more insurance codes which are relevant to the value of the insurance claim may be specified in an insurance claims processing program executable on a computer system. Each insurance code may be considered a contributing factor to the estimated value of the insurance claim. These insurance codes may be entered by a user during a consultation session in which a claimant reports his or her injuries and/or treatments for a particular insurance claim. In specifying the one or more insurance codes, a claim number for the insurance claim may be specified, and the one or more insurance codes may be associated with the claim number. The insurance codes may include one or more injury codes, wherein each injury code specifies a bodily injury incurred by the claimant. The insurance codes may include one or more treatment codes, wherein each treatment code specifies a treatment for at least one of the bodily injuries incurred by the claimant.

A consultation report typically includes an estimated value or range of estimates values for each bodily injury claim. In determining the range of fair estimate value, the insurance claims processing system typically uses contributing factor values, along with regional factors such as cost of living, etc. to arrive at a monetary estimate. Contributing factor values due to bodily injury, in one embodiment, are generally directly proportional to the level of trauma experienced during and after the bodily injury. The insurance claims processing system may be operable to calculate a numeric value for an insurance code wherein, for example, the claimant is in a coma and is on life support system because of a bodily injury. Treatment received for the bodily injury, such as hospitalization, surgery, physical therapy, etc. may contribute to decrease the trauma and hence may result in a decrease of the estimated value. In one embodiment, the contributing factors associated with the treatment code may therefore have a negative value.

In step 120C, one or more contributing factor values may be determined. Each of the contributing factor values corresponds to one of the insurance codes, and each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim. The insurance claim may include a bodily injury claim, and the contributing factor values may be relevant to an estimate of a bodily injury general damages value of the bodily injury claim. Each of the one or more contributing factor values may include a numeric value. In one embodiment, determining the one or more contributing factor values may include calculating the one or more contributing factor values as a function of one or more business rules. In other words, a rules engine or other expert system may be configured to calculate dynamically the amount that each insurance code adds to or subtracts from the estimate of the value of the insurance claim. This amount contributed by one insurance code may be dependent on the amounts contributed by other specified insurance codes. In one embodiment, the expert system may be developed using the PLATINUM Aion™ rule-based development environment available from Computer Associates International, Inc. In one embodiment, this determination of the contributing factor values may take place after substantially all of the insurance codes have been entered and when a consultation report is desired to be displayed.

In step 130C, each of the one or more insurance codes and the corresponding contributing factor values may be stored in a table. An example of such a table is illustrated in Figure 3C. Figure 3C shows a table with a column for the insurance codes (e.g., injury codes and treatment codes) 330C and a column for contributing factor values 350. The values shown are for purposes of example only and are not intended to be limiting. The table may include one or more rows, wherein each row of the table includes one of the insurance codes and the corresponding contributing factor value. In one embodiment, the table may be implemented as a table in a relational database. In one embodiment, the table may be implemented in accordance with object-oriented techniques of software design.



In step 140C, the table may be sorted by the contributing factor values to generate a sorted table of contributing factor values 350C and corresponding insurance codes 330C. The table may be sorted by contributing factor value 350C in ascending or descending order. A set of contributing factors (i.e., insurance codes) from the sorted table which meet one or more selection criteria may be identified and reported. The set of contributing factors may be included in a consultation report which may be printed and/or displayed on a display device. The selection criteria may include a selection of the largest positive of the one or more contributing factor values up to a certain quantity, such as five. Therefore, identifying and reporting the set of contributing factors from the sorted table may include identifying and reporting a sorted set of the largest contributing factor values up to the certain quantity. In one embodiment, each contributing factor value in the sorted set of the largest positive contributing factor values adds to the estimate of the value of the insurance claim. The selection criteria may include the largest negative of the one or more contributing factor values up to a certain quantity, such as five. Therefore, identifying and reporting the set of contributing factors from the sorted table may include identifying and reporting a sorted set of the largest negative contributing factor values up to the certain quantity. Each contributing factor value in the sorted set of the largest negative contributing factor values subtracts from the estimate of the value of the insurance claim.

Figure 2D: A flow chart to transform formulas data to formulas for assessing bodily injury damages claims according to one embodiment

Figure 2D illustrates one embodiment of a method to transform formula data to formulas for assessing bodily injury damages claims according to one embodiment. In step 100D, the user or the administrator of the insurance claim processing system 20 provides a rules engine, which is capable of processing rules and operating on formulas associated with assessing bodily injury damages claims. As used herein, a "rules engine" may include an expert system which is operable to produce an output as a function of a plurality of rules. A rules engine, in one embodiment, may include an expert computer system which utilizes and builds a knowledge base developed in the form of business rules and/or formulas to assist the user in decision-making. It allows the insurance companies to capture the knowledge base of their experts by defining business rules and formulas. Once created, the expertise may be used in processing many transactions, including assessing bodily injury damages claims. The business rules and formulas enable claim-processing professionals to be assisted by industry experts to evaluate legal, medical, insurance conditions during the valuation of an insurance claim. In one embodiment, the rules engine may be developed using a commercial rule-based development tool such as PLATINUM Aion™, which is available from Computer Associates International, Inc.

Business rules, often referred to simply as rules, are executable computer program instructions. The business rules may invoke, operate or execute formulas to calculate trauma severity values associated with personal bodily injury claims. In one embodiment, the formulas include computer commands or logical instructions to achieve a certain mathematical function, i.e., assess trauma severity value for a spinal injury. Each formula, in one embodiment, may include a function operating on one or more inputs to compute one or more outputs. In another embodiment, the formulas may include a plurality of functions operating on one or more inputs to compute one or more outputs. In one embodiment, the function may be mathematical such as add, subtract, divide, etc. In another embodiment, the function may be based on custom algorithms, for example an algorithm to calculate phantom pain associated with bodily injuries. In one embodiment, the insurance claim processing system may include several formula types, wherein each formula may be specified by a unique function. The formulas may be invoked, operated, executed or fired, under the control of the business rules. Only

the pertinent formulas, i.e., a subset of all the available formulas, are typically be selected and executed for processing a specific bodily injury damages claim.

In step 110D, the user or the administrator of the insurance claim processing system 20 provides a database 40, which is external to the rules engine, and is capable of storing and/or retrieving information associated with insurance claim processing. As used herein, the term "external" means that the database is separate from the rules engine. The type of information stored and/or retrieved may include, but not be limited to, business objects, tables, formulas, software source code, executable software, etc. In one embodiment, the database may be relational. In another embodiment, the database 40 may be an object-oriented database.

In one embodiment, the database 40 may include a plurality of tables, which may be accessed by a translator program, also referred to as an application program, to transform, create, generate, or instantiate the data stored in the tables into formulas. In one embodiment, the database may include a plurality of knowledge bases often storing knowledge data in the form of tables. Knowledge-bases may include, but not be limited to, data, tables, program instructions, business rules, objects, etc. The data stored in the knowledge bases may also be in the form of objects. In another embodiment, the translator program may transform data stored in tables into static instances of an object class. In one embodiment, for example, the formula data table shown by way of example in Figure 3aD includes data structured in a tabular format, i.e., a table with several rows and columns. In one embodiment, the Formulas class of objects may include static instances wherein each static instance is a direct representation of a row of data in the formula data table. Thus the formula data table may include all the relevant information necessary to transform each row of the formula data table into a static instance of the Formula object class.

In one embodiment, the entire set of business formulas may be grouped or classified into a plurality of formula types. Each formula may have a common construction style, e.g., a function operating on one or more inputs to compute one or more outputs. In one embodiment, there may be several hundred pre-defined formulas types. New formula types to meet user requirement may also be created and added to the existing formula type list or table. Data included in the example formulas data table shown in Figure 3aD may typically include information necessary to create a static instance of the Formula object class. The formula data may include a plurality of entries in a table in a database, and the formula data may include a formula identifier 300D, a sequence number 310D, a section description, a page identifier, a prompt identifier, an answer identifier, a mathematical function or operation 320D, a numeric value 330D, and other suitable elements.

In step 130D, the translator program initiates the transformation of data stored in the formula data table to formulas i.e. the creation of static instances of the Formula object class, by reading the formula data. In one embodiment, methods such as KBOpen and ControlLoad may be used to open and load the formulas data table. Every knowledge base table has a corresponding object class name in the insurance claim-processing program 60. For example, the formula data knowledge base table may have a corresponding formula object class. The contents of each row are read one row at a time.

In step 140D, data entry in each column of the formulas data table is used to transform, or create an instance of the formula class object in the formulas knowledge base. The ControlLoad function determines which set of instances of the Formula class must first be deleted using DeleteInstances ('Formulas') and recreated via Class(Formulas).Load function.

Once created, the instance of the formulas class in the formulas knowledge-base may be invoked, operated, or executed by the business rules by using the calculate method with FormulaID and the sequence

number as the parameters. In one embodiment, the calculate method gathers all of the static instances with a specified FormulaID along with a sequence number. The calculate method then interprets the operations and controls how the formula is executed. The resulting output value is used to calculate the trauma severity value.

Although not explicitly shown, Steps 130D and 140D may be repeated, in one embodiment, to read all rows of the formulas data table and transform the data to as many instances of the formulas class. On invocation or execution of the static instance, the insurance claim processing software 60 may compute a trauma severity value applicable to a specific bodily injury claim consultation transaction, and print a consultation report, which summarizes an assessment or estimate of the bodily injury general damages claim.

In one embodiment, the task of updating, modifying, or revising the formulas may be simplified. To update a formula, the user or the administrator of the insurance claim processing system 20 may update the data entries stored in the formulas data table. By executing steps 130D and 140D, the instances of the formulas class may be automatically updated to reflect the changes.

In another embodiment, the task of customizing of formulas to meet specific user requirements may also be simplified. The customizing of formula data in response to business requirements results in customized formulas. To add a new formula type, the user or the administrator of the insurance claim processing system 20 may add a new instance of the formulas class and update the database 40. By executing steps 130D and 140D, the formulas may be automatically customized to reflect the new changes.

#### Figure 3aD: Formula Data Table in one embodiment

Figure 3aD illustrate the tabular structure of the formula data table according to one embodiment. For purposes of example, four columns are illustrated for the table. In one embodiment, the table may comprise fewer or more columns. In one embodiment, the formula data table may be implemented in any number of ways, such as a relational database, in a variety of commercially available database management systems. The formula data table may have as many rows as may be supported by the database management system in which it is implemented. The formula data table may be accessed (e.g., searched, written to, read from, etc.) through a programming interface or standard access mechanism (e.g., SQL) which is supported by the database management system in which the formula data table is implemented.

#### Figure 2E: A flow chart to transform rules data to rules for assessing bodily injury damages claims according to one embodiment

Figure 2E illustrates one embodiment of a method to transform rules data to rules for assessing bodily injury damages claims according to one embodiment. In step 100E, the user or the administrator of the insurance claim processing system 20 provides a rules engine, which is capable of processing rules associated with assessing bodily injury damages claims. The rules engine may be included as part of the insurance claims processing system 10, such as the insurance claims processing program 60, as shown in Figure 1a. As used herein, a "rules engine" may include an expert system which is operable to produce an output as a function of a plurality of rules. A rules engine, in one embodiment, may include an expert computer system which utilizes and builds a knowledge base developed in the form of business rules and/or formulas to assist the user in decision-making.

It allows the insurance companies to capture the knowledge base of their experts by defining business rules. Once created, the expertise may be used in processing many transactions, including assessing bodily injury damages claims. The business rules enable claim-processing professionals to be assisted by industry experts to evaluate legal, medical, insurance conditions before arriving at a valuation of an insurance claim. In one

embodiment, the rules engine may be developed using a commercial rule-based development tool such as PLATINUM Aion™, which is available from Computer Associates International, Inc.

Business rules, often referred to simply as rules, are executable computer program instructions. The rules include computer commands or logical instructions to achieve a certain function. For example, rules may guide an assessment or estimate of bodily injury general damages. Each rule, in one embodiment, includes a premise followed by one or more resulting actions. For example, in one embodiment, a business rule may state 'If patient requires hospitalization after emergency care treatment then the trauma severity level should be classified as major'. In this case, the premise is 'patient requires hospitalization after emergency care treatment'. The resulting action is 'trauma severity level should be classified as major'. In one embodiment, the insurance claim processing system may include several thousand business rules. The rules may be executed or fired, under the control of the insurance claim processing software, based on certain events, user inputs, etc. Only pertinent rules, i.e., a subset of all the available rules, are typically selected and executed for processing a specific bodily injury damages claim.

In step 110E, the user or the administrator of the insurance claim processing system 20 provides a database 40, which is external to the rules engine, and is capable of storing and/or retrieving information associated with insurance claim processing. As used herein, the term "external" means that the database is separate from the rules engine. The type of information stored and/or retrieved may include, but not be limited to, business objects, tables, rules, software source code, executable software, etc. In one embodiment, the database may be relational. In another embodiment, the database 40 may be an object-oriented database.

In one embodiment, the database 40 may include a plurality of tables, often referred to as knowledge-bases, which may be accessed by an translator program or other application program to transform or create or generate the data stored in the tables into rules. In another embodiment, the application program may transform data stored in tables into static instances of an object class. In one embodiment, for example, the rules data table as shown by way of example in Figure 3aE includes data structured in a tabular format, i.e., a table with several rows and columns. The rules data table includes all the relevant information necessary to transform each row of the rules data table into an equivalent business rule.

The entire set of business rules may be grouped or classified into a plurality of rule styles. Each rule style may have a common construction style, i.e., the syntax for the rule premise and the resulting rule action may be common. In one embodiment, there may be several hundred pre-defined rules styles. New rule styles to meet user requirement may also be created and added to the existing rule style list or table. Data included in the rules data table shown in Figure 3a may typically include information necessary to construct the rule premise and the resulting one or more rule actions. In one embodiment, the rules data table shown in Figure 3a may include, but not be limited to, columns such as an injury code 300E, an adjustment type, an adjustment amount 310E, a rule style 330E, a rule name 320E, etc.

Other types of tables stored in the database 40, in one embodiment, may include a LineText table as shown by way of example in Figure 3cE and a Template table as shown by way of example in Figure 3bE. The LineText table may store lines or other elements of text which may be used to generate the rules. The Template table may include information which may be used by the application program to read each row of data from the rules data table and transform, create or generate the rules data into a rule. In one embodiment, every rule style may have an entry in the Template table. The location to store the transformed rule, the name of the rules data table, the name of the rule style, an identifier for the line text, etc. may also be included in the Template table, in one embodiment.

In step 130E of Figure 2E, the application program initiates the transformation of data stored in the rules data table to rules by reading the rules data. In one embodiment, the KBOpen and the ControlLoad methods may be used to open and load the rules data knowledge base table. In one embodiment, every knowledge base table has a corresponding object class name in the insurance claim-processing program 60. The contents of each row are read one at a time.

In step 140E, data entries in each column of the rules data table are used to transform, create, or construct the rules. Entries for columns like rules style and rules name in the rules data table may be used as a key to find a matching record in the Template table. Other data stored in the columns of the rules data may be used to build the rule premise and/or the resulting one or more rules action.

The specific syntax used to construct the rule is specified in the Template for a given rule style 330E and a rule name 320E. For example, in one embodiment, rule style RS000 and rule name RN000 may specify:

IFMATCH Col#1 WITH Col#2 = Col#3 THEN Col#4 = Col#5

where Col#1 through Col#5 entries may be read from data stored in columns 1 through 5 of the rules data table shown in Figure 3a and where rule style = RS000 and rule name = RN000. The text string corresponding to the above transformed rule may be stored in the Line\_Text 370E field of the LineText table shown in Figure 3cE using Line\_TextID 360E as a location reference obtained from the Template table shown in Figure 3bE.

Although not explicitly shown, Steps 130E and 140E may be repeated, in one embodiment, to read all rows of the rules data knowledge base table and transform the data to a plurality of rules. On execution of the plurality of rules, applicable to a specific bodily injury claim consultation transaction, the insurance claim processing software 60 may print a consultation report, which summarizes an assessment for the bodily injuries claim.

In one embodiment, the task of updating, modifying or revising of rules may be simplified. To update a business rule, the user or the administrator of the insurance claim processing system 20 may update the data entries stored in the rules data table. By executing steps 130E and 140E, the rules may be automatically updated to reflect the changes.

In another embodiment, the task of customizing of rules to meet specific user requirements may also be simplified. To add a new business rule or structurally modify an existing rule, the user or the administrator of the insurance claim processing system 20 may add a new entry to the rule style and rule name table and update the database 40. By executing steps 130E and 140E, the rules may be automatically customized to reflect the new changes.

#### Figures 3aE, 3bE and 3cE: Rules data Table, Template Table and Line Text Table in one embodiment

Figures 3aE, 3bE and 3cE illustrate the tabular structure of the Rules data Table, Template Table and Line Text Table according to one embodiment. Only four columns are illustrated for each of the table. In one embodiment, each of the tables may comprise more or fewer columns. In one embodiment, the tables may be implemented in any number of ways, such as a relational database, in a variety of commercially available database management systems. The tables may have as many rows as may be supported by the database management system in which they are implemented. The tables may be accessed (e.g., searched, written to, read from, etc.) through a programming interface or standard access mechanism (e.g., SQL) which is supported by the database management system in which the tables are implemented. The data shown in the various tables in Figures 3aE, 3bE, and 3cE are for purposes of example only and are not intended to be limiting.

Figure 4E: A block diagram of the transformation of rules data to rules for assessing bodily injury damages according to one embodiment

In Figure 4E, an embodiment of the transformation of rules data to rules may include a knowledge table 400E. In one embodiment, the knowledge table may be a rules data table as shown in Figure 3aE. In one embodiment, the knowledge table 400E includes data necessary to transform, or build, or create, or define, or generate rules based on a specified rule structure. The transformation method 420E (as discussed in greater detail with reference to Figure 2E) orchestrates the combining of the data from the knowledge table 400E and the rule syntax specified in the Template table 440E. The transformation method 420E may save the rule as text in an associated knowledge base or insurance database.

Figure 2F: Generating a message for an insurance claim processing system

Figure 2F is a flowchart illustrating the generation of a message for processing an insurance claim by an insurance claim processing system, according to one embodiment. In step 100F, the user of insurance claims processing system 10 may use a client system 80 to initially configure, set up, install and store the software associated with the insurance claims processing system, including all the messages.

In one embodiment, a message may be defined by a message code and a corresponding message text and both the message code as well as the message text stored in a message table. In another embodiment, as shown in Figure 3F, the message code may further include a message section 300F and a message code identifier 310F. The combination of a specific message section and a specific message code identifier uniquely specifies or selects the message text 320F from the message table.

The initial configuration may include specifying or selecting a country and/or a language for the installation. In one embodiment, the selection of a language and/or a country may automatically select a corresponding message text stored in a database. In another embodiment, the user may modify the message text during the installation process.

In step 110F, the application program software executing in the insurance claims processing system 10 may initiate a request to display a message. This may be in response to the execution of code in another portion of the application program software, or in response to a previous user input and/or in response to the execution of a business rule.

In step 120F, the request to retrieve message text is processed further. In one embodiment, the request may be further processed by another portion of the application program software by invoking the GetMessageText method of the Message object, and including values for MsgSectionIn and MsgCodeIn arguments associated with the GetMessageText method. In another embodiment, the processing of the request may include executing software of a subroutine function to retrieve a corresponding message text for a given message code passed along by the requesting program as an input. The message text may be retrieved from a database, in one embodiment or from an object repository in another embodiment.

In step 130F, the message text corresponding to a specified message code is received from step 120F. In step 140F, the requested message text is sent to the requesting program for display.

Figure 3F: Using a messages table for an insurance claim processing system

Figure 3F is a flowchart illustrating a method of using a messages table associated with processing an insurance claim according to one embodiment. In step 200F, an insurance claims processing program may generate a request to display a message, wherein the request may include a requested message code. Each message code may include a sequence of alphanumeric values, wherein each sequence is unique relative to the

other sequences. In one embodiment, each message code may include a message section and a message code identifier, as further illustrated in Figure 4F.

In step 210F, a messages table in a database may be searched for a matching entry which matches the requested message code. The table may store a plurality of entries including the matching entry, wherein each entry in the table may include a message code and a corresponding message text. The database may be implemented, for example, as a relational database or an object-oriented database.

In step 220F, the matching entry may be retrieved from the table in response to said searching the table for the matching entry which matches the requested message code, wherein the matching entry comprises a matching message text.

In step 230F, the matching message text corresponding to the requested message code may be displayed by the insurance claims processing program on a display device coupled to a computer system. The message text may be configured to assist a user in processing an insurance claim using the insurance claims processing program.

In various embodiments, the message text of each entry in the table may be specified during an installation of the insurance claims processing program on a computer system and/or during an installation of the table on a computer system. The message text of each entry in the table in the database may be updated by re-installing the table on the computer system without re-installing the insurance claims processing program on the computer system. The message text of one or more entries in the table may be customized for a particular insurance organization during an installation of the insurance claims processing program on a computer system. Additionally, the message text of one or more entries in the table may be localized for use in a particular geographical location.

In one embodiment, the insurance claim may include a bodily injury claim, and processing the insurance claim may include processing the bodily injury claim to estimate a bodily injury general damages value. The requested message text may include information relevant to an estimate of a value of the insurance claim. The requested message code may include an injury code which identifies a specific bodily injury, and the requested message text may include a name of the specific bodily injury. The requested message code may include a treatment code which identifies a specific injury treatment, and the requested message text may include a name of the specific injury treatment.

Figure 4F: An example of a messages table

Figure 4F is an exemplary diagram of a messages table in a database according to one embodiment. In one embodiment, the messages table may include columns such as message section 300F, message code identifier 310F, and message text 320F. In one embodiment, the messages table may be implemented in any number of ways, such as a relational database, in a variety of commercially available database management systems. The messages table may have as many rows as may be supported by the database management system in which it is implemented. The messages table may be accessed (e.g., searched, written to, read from, etc.) through a programming interface or standard access mechanism (e.g., SQL) which is supported by the database management system in which the messages table is implemented.

Although the system and method of the present invention have been described in connection with several embodiments, the invention is not intended to be limited to the specific forms set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as can be reasonably included within the spirit and scope of the invention as defined by the appended claims.

## WHAT IS CLAIMED IS:

1. A method for processing an insurance claim to estimate a value of the insurance claim, the method comprising:

5 initiating the processing of the insurance claim by initiating a first step, wherein the processing of the insurance claim comprises a plurality of steps;

proceeding through one or more of the steps in the processing of the insurance claim to arrive at an intermediary step;

displaying the intermediary step after arriving at the intermediary step;

10 displaying a table of contents, wherein the table of contents comprises an ordered list of the steps associated with the processing of the insurance claim, and wherein the ordered list of steps comprises the first step, the intermediary step, and any steps in between the first step and the intermediary step;

15 selecting one of the steps from the ordered list of steps associated with the processing of the insurance claim in the table of contents; and

displaying the selected step in response to selecting the selected step in the table of contents.

2. The method of claim 1,

wherein the ordered list of steps in the table of contents further comprises a final step.

3. The method of claim 2,

wherein the selected step comprises the final step.

4. The method of claim 3,

25 wherein the final step comprises a report concerning the value of the insurance claim, wherein displaying the selected step comprises displaying the report, and wherein the report comprises information entered in the first step and in any steps in between the first step and the intermediary step.

5. The method of claim 1, further comprising:

30 redisplaying the intermediary step after displaying the selected step.

6. The method of claim 5, further comprising:

continuing the processing of the insurance claim after redisplaying the intermediary step by entering additional information relevant to the estimate of the value of the insurance claim.

7. The method of claim 1,

wherein the insurance claim comprises a bodily injury claim, and wherein processing the insurance claim to estimate the value of the insurance claim comprises processing the bodily injury claim to estimate a bodily injury general damages value.

8. The method of claim 1,



wherein the steps comprise steps for entry of information relevant to the estimate of the value of the insurance claim.

9. The method of claim 8,

5 wherein the steps comprise screens displayed on a display device coupled to a computer system.

10. The method of claim 8,

wherein the information comprises bodily injury treatment information.

10 11. The method of claim 8,

wherein the information comprises bodily injury damages information.

12. The method of claim 8,

15 wherein the ordered list of steps associated with the processing of said insurance claim are dynamically modifiable in response to said entry of information.

13. The method of claim 12, further comprising:

20 adding or deleting steps to said dynamically modifiable ordered list of steps in response to said entry of information.

14. The method of claim 1,

25 wherein proceeding through the one or more of the steps in the processing of the insurance claim further comprises entering information relevant to the estimate of the value of the insurance claim in the one or more of the steps.

15. The method of claim 14, further comprising:

storing the entered information.

16. The method of claim 14, further comprising:

30 modifying the entered information relevant to the estimate of the value of the insurance claim in the selected step after selecting the step in the table of contents.

17. The method of claim 16, further comprising:

35 storing the modified information.

18. The method of claim 1,

40 wherein the initiating the processing of the insurance claim, the proceeding through one or more of the steps, the displaying the intermediary step, the displaying the table of contents, the selecting one of the steps from the ordered list of steps, and the displaying the selected step take place in a single session of an application program executing on a computer system.

19. A method for enabling a user to estimate an insurance claim, wherein the insurance claim is processed by an insurance claim processing system, wherein the insurance claim processing system includes a client system coupled through a network to an insurance claim processing server, the method comprising:

- a) receiving a request from a user of the client system to estimate an insurance claim, wherein said request comprises a claim identifier associated with said insurance claim;
- b) searching the insurance claim processing system for said claim identifier;
- c) if the claim identifier is not present, receiving specifications for said claim identifier;
- d) providing a display of table of contents to the client system associated with said claim identifier, wherein the table of contents display represents one or more steps associated with said insurance claim, wherein one of the one or more steps comprises an end step;
- e) receiving a selection for at least one of the one or more steps associated with said insurance claim;
- f) providing an associated display to the client system of the selected step;
- g) receiving one or more client system inputs associated with the selected step;
- h) storing one or more client system inputs associated with the selected step;
- i) repeating any of steps e) through h) until said selection for at least one of the one or more steps is the end step; and
- j) providing an estimated value display to the client system of said insurance claim.

20. The method of claim 19, wherein the one or more steps associated with said insurance claim are dynamically modifiable in response to said client system inputs.

21. The method of claim 20, further comprising adding or deleting said one or more steps in response to said client system inputs.

22. The method of claim 19, wherein searching the insurance claim processing system comprises searching an insurance database.

23. A method for dynamically creating a table of contents display screen, wherein the table of contents display screen is associated with a specified insurance claim, wherein said specified insurance claim is associated with a set of one or more display screens, wherein each display screen in the set of one or more display screens comprises a previous display screen pointer and a user pointer, the method comprising:

- a) reading the first previous display screen pointer for a first display screen included in the set of one or more display screens associated with the specified insurance claim;
- b) determining whether the first previous display screen pointer is present;
- c) if the first previous display screen pointer is not present, adding the first display screen included in the set of one or more display screens to said table of contents display screen;
- d) reading the first user pointer for said first display screen included in the set of one or more display screens associated with the specified insurance claim;
- e) determining whether the first user pointer is present;

- f) if the first user pointer is present, adding the first display screen included in the set of one or more display screens to said table of contents display screen; and
- g) storing said table of contents display screen.

24. A system for processing an insurance claim to estimate a value of the insurance claim, the system comprising:

a CPU;

a display coupled to the CPU;

a memory coupled to the CPU, wherein the memory stores program instructions which are executable by

the CPU to:

initiate the processing of the insurance claim by initiating a first step, wherein the processing of the insurance claim comprises a plurality of steps;

proceed through one or more of the steps in the processing of the insurance claim to arrive at an intermediary step;

display the intermediary step on the display after arriving at the intermediary step;

display a table of contents on the display, wherein the table of contents comprises an ordered list of the steps associated with the processing of the insurance claim, and wherein the ordered list of steps comprises the first step, the intermediary step, and any steps in between the first step and the intermediary step;

permit a selection by a user of one of the steps from the ordered list of steps associated with the processing of the insurance claim in the table of contents; and

display the selected step on the display in response to the selection of the selected step in the table of contents.

25. The system of claim 24,

wherein the ordered list of steps in the table of contents further comprises a final step.

26. The system of claim 25,

wherein the selected step comprises the final step.

27. The system of claim 36,

wherein the final step comprises a report concerning the value of the insurance claim, wherein displaying the selected step comprises displaying the report, and wherein the report comprises information entered in the first step and in any steps in between the first step and the intermediary step.

28. The system of claim 24, wherein the program instructions are further executable by the CPU to: redisplay the intermediary step on the display after displaying the selected step.

29. The system of claim 28, wherein the program instructions are further executable by the CPU to:

continue the processing of the insurance claim after redisplaying the intermediary step by permitting the user to enter additional information relevant to the estimate of the value of the insurance claim.

30. The system of claim 24,  
wherein the insurance claim comprises a bodily injury claim, and wherein processing the insurance claim  
to estimate the value of the insurance claim comprises processing the bodily injury claim to  
5 estimate a bodily injury general damages value.
31. The system of claim 24,  
wherein the steps comprise steps for entry of information relevant to the estimate of the value of the  
insurance claim.  
10
32. The system of claim 31,  
wherein the steps comprise screens displayed on the display.
33. The system of claim 31,  
15 wherein the information comprises bodily injury treatment information.
34. The system of claim 31,  
wherein the information comprises bodily injury damages information.
- 20 35. The system of claim 31,  
wherein the ordered list of steps associated with the processing of said insurance claim are dynamically  
modifiable in response to said entry of information.
- 25 36. The system of claim 35, wherein the program instructions are further executable by the CPU to:  
add or delete steps to said dynamically modifiable ordered list of steps in response to said entry of  
information.
- 30 37. The system of claim 24,  
wherein proceeding through the one or more of the steps in the processing of the insurance claim further  
comprises entering information relevant to the estimate of the value of the insurance claim in  
the one or more of the steps.
- 35 38. The system of claim 37, wherein the program instructions are further executable by the CPU to:  
store the entered information in the memory.
39. The system of claim 37, wherein the program instructions are further executable by the CPU to:  
modify the entered information relevant to the estimate of the value of the insurance claim in the selected  
step after selecting the step in the table of contents.
- 40 40. The system of claim 39, wherein the program instructions are further executable by the CPU to:  
store the modified information in the memory.

41. The system of claim 24,  
wherein the program instructions for the initiating the processing of the insurance claim, the proceeding  
through one or more of the steps, the displaying the intermediary step, the displaying the table  
of contents, the selecting one of the steps from the ordered list of steps, and the displaying the  
selected step are executed within a single session of an application program executing on the  
CPU.

42. A carrier medium comprising program instructions for estimating a value of the insurance claim, wherein  
the program instructions are computer-executable to implement:

initiating the processing of the insurance claim by initiating a first step, wherein the processing of the  
insurance claim comprises a plurality of steps;

proceeding through one or more of the steps in the processing of the insurance claim to arrive at an  
intermediary step;

displaying the intermediary step after arriving at the intermediary step;

displaying a table of contents, wherein the table of contents comprises an ordered list of the steps  
associated with the processing of the insurance claim, and wherein the ordered list of steps  
comprises the first step, the intermediary step, and any steps in between the first step and the  
intermediary step;

permitting a user to select one of the steps from the ordered list of steps associated with the processing of  
the insurance claim in the table of contents; and

displaying the selected step in response to the user selecting the selected step in the table of contents.

43. The carrier medium of claim 42,

wherein the ordered list of steps in the table of contents further comprises a final step.

44. The carrier medium of claim 43,

wherein the selected step comprises the final step.

45. The carrier medium of claim 44,

wherein the final step comprises a report concerning the value of the insurance claim, wherein displaying  
the selected step comprises displaying the report, and wherein the report comprises information  
entered in the first step and in any steps in between the first step and the intermediary step.

46. The carrier medium of claim 42, wherein the program instructions are further computer-executable to  
implement:

redisplaying the intermediary step after displaying the selected step.

47. The carrier medium of claim 46, wherein the program instructions are further computer-executable to  
implement:

continuing the processing of the insurance claim after redisplaying the intermediary step by entering additional information relevant to the estimate of the value of the insurance claim.

48. The carrier medium of claim 42,  
5 wherein the insurance claim comprises a bodily injury claim, and wherein processing the insurance claim to estimate the value of the insurance claim comprises processing the bodily injury claim to estimate a bodily injury general damages value.

49. The carrier medium of claim 42,  
10 wherein the steps comprise steps for entry of information relevant to the estimate of the value of the insurance claim.

50. The carrier medium of claim 49,  
15 wherein the steps comprise screens displayed on a display device coupled to a computer system.

51. The carrier medium of claim 49,  
wherein the information comprises bodily injury treatment information.

52. The carrier medium of claim 49,  
20 wherein the information comprises bodily injury damages information.

53. The carrier medium of claim 49,  
wherein the ordered list of steps associated with the processing of said insurance claim are dynamically modifiable in response to said entry of information.

54. The carrier medium of claim 53, wherein the program instructions are further computer-executable to implement:  
25 adding or deleting steps to said dynamically modifiable ordered list of steps in response to said entry of information.

55. The carrier medium of claim 42,  
30 wherein proceeding through the one or more of the steps in the processing of the insurance claim further comprises entering information relevant to the estimate of the value of the insurance claim in the one or more of the steps.

56. The carrier medium of claim 55, wherein the program instructions are further computer-executable to implement:  
35 storing the entered information.

57. The carrier medium of claim 55, wherein the program instructions are further computer-executable to implement:  
40

modifying the entered information relevant to the estimate of the value of the insurance claim in the selected step after selecting the step in the table of contents.

58. The carrier medium of claim 57, wherein the program instructions are further computer-executable to implement:

storing the modified information.

59. The carrier medium of claim 42,

wherein the initiating the processing of the insurance claim, the proceeding through one or more of the steps, the displaying the intermediary step, the displaying the table of contents, the selecting one of the steps from the ordered list of steps, and the displaying the selected step take place in a single session of an application program executing on a computer system.

60. A method for identifying one or more contributing factors that may be used to estimate a value of an insurance claim, the method comprising:

specifying one or more insurance codes, wherein each insurance code comprises a contributing factor to the value of the insurance claim;

determining one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the insurance codes, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim;

storing each of the one or more insurance codes and the corresponding contributing factor values in a table comprising one or more rows, wherein each row of the table comprises one of the insurance codes and the corresponding contributing factor value;

sorting the table by the contributing factor values to generate a sorted table of contributing factor values and corresponding insurance codes; and

identifying and reporting a set of contributing factors from the sorted table which meet one or more selection criteria.

61. The method of claim 60,

wherein said determining the one or more contributing factor values comprises calculating the one or more contributing factor values as a function of one or more business rules.

62. The method of claim 60,

wherein the specifying the one or more insurance codes comprises specifying a claim number for the insurance claim and specifying the one or more insurance codes associated with the claim number.

63. The method of claim 60,

wherein said one or more insurance codes comprise one or more injury codes, wherein each injury code specifies a bodily injury incurred by a claimant of the insurance claim.

64. The method of claim 63,  
wherein said one or more insurance codes comprise one or more treatment codes, wherein each treatment  
code specifies a treatment for at least one of the bodily injuries incurred by the claimant of the  
insurance claim.

65. The method of claim 60,  
wherein the table comprises a table in a relational database.

66. The method of claim 60,  
wherein the table comprises an object-oriented table.

67. The method of claim 60,  
wherein each of the one or more contributing factor values is a numeric value.

68. The method of claim 60,  
wherein the sorting the table by the contributing factor values comprises sorting the table in ascending  
order by the contributing factor values.

69. The method of claim 60,  
wherein the sorting the table by the contributing factor values comprises sorting the table in descending  
order by the contributing factor values.

70. The method of claim 60,  
wherein the selection criteria comprise the largest positive of said one or more contributing factor values  
up to a certain quantity; and  
wherein the identifying and reporting the set of contributing factors from the sorted table which meet the  
one or more selection criteria comprise identifying and reporting corresponding contributing  
factors for a sorted set of the largest positive contributing factor values up to the certain  
quantity.

71. The method of claim 70,  
wherein each contributing factor value in the sorted set of the largest positive contributing factor values  
adds to the estimate of the value of the insurance claim.

72. The method of claim 60,  
wherein the selection criteria comprise the largest negative of said one or more contributing factor values  
up to a certain quantity; and  
wherein the identifying and reporting the set of contributing factors from the sorted table which meet the  
one or more selection criteria comprise identifying and reporting corresponding contributing



factors for a sorted set of the largest negative contributing factor values up to the certain quantity.

73. The method of claim 72,

5 wherein each contributing factor value in the sorted set of the largest negative contributing factor values subtracts from the estimate of the value of the insurance claim.

74. The method of claim 60,

10 wherein the insurance claim comprises a bodily injury claim, and wherein said contributing factor values are relevant to an estimate of a bodily injury general damages value of the bodily injury claim.

75. A system for identifying one or more contributing factors that may be used to estimate a value of an insurance claim, the system comprising:

a CPU;

15 a database coupled to the CPU, wherein the database stores a table; and

a memory coupled to the CPU, wherein the memory stores program instructions which are executable by the CPU to:

20 specify one or more insurance codes which affects the value of the insurance claim, wherein each insurance code comprises a contributing factor to the value of the insurance claim;

determine one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the insurance codes, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim;

25 store each of the one or more insurance codes and the corresponding contributing factor values in the table comprising one or more rows, wherein each row of the table comprises one of the insurance codes and the corresponding contributing factor value;

sort the table by the contributing factor values to generate a sorted table of contributing factor values and corresponding insurance codes; and

30 identify and report a set of contributing factors from the sorted table which meet one or more selection criteria.

76. The system of claim 75,

35 wherein said determining the one or more contributing factor values comprises calculating the one or more contributing factor values as a function of one or more business rules.

77. The system of claim 75,

40 wherein the specifying the one or more insurance codes comprises specifying a claim number for the insurance claim and specifying the one or more insurance codes associated with the claim number.

78. The system of claim 75,  
wherein said one or more insurance codes comprise one or more injury codes, wherein each injury code specifies a bodily injury incurred by a claimant of the insurance claim.
- 5 79. The system of claim 78,  
wherein said one or more insurance codes comprise one or more treatment codes, wherein each treatment code specifies a treatment for at least one of the bodily injuries incurred by the claimant of the insurance claim.
- 10 80. The system of claim 75,  
wherein the database comprises a relational database.
81. The system of claim 75,  
wherein the table comprises an object-oriented table.
- 15 82. The system of claim 75,  
wherein each of the one or more contributing factor values is a numeric value.
83. The system of claim 75,  
20 wherein the sorting the table by the contributing factor values comprises sorting the table in ascending order by the contributing factor values.
84. The system of claim 75,  
wherein the sorting the table by the contributing factor values comprises sorting the table in descending  
25 order by the contributing factor values.
85. The system of claim 75,  
wherein the selection criteria comprise the largest positive of said one or more contributing factor values up to a certain quantity; and  
30 wherein the identifying and reporting the set of contributing factors from the sorted table which meet the one or more selection criteria comprise identifying and reporting corresponding contributing factors for a sorted set of the largest positive contributing factor values up to the certain quantity.
- 35 86. The system of claim 85,  
wherein each contributing factor value in the sorted set of the largest positive contributing factor values adds to the estimate of the value of the insurance claim.
87. The system of claim 75,  
40 wherein the selection criteria comprise the largest negative of said one or more contributing factor values up to a certain quantity; and

wherein the identifying and reporting the set of contributing factors from the sorted table which meet the one or more selection criteria comprise identifying and reporting corresponding contributing factors for a sorted set of the largest negative contributing factor values up to the certain quantity.

5

88. The system of claim 87,  
wherein each contributing factor value in the sorted set of the largest negative contributing factor values subtracts from the estimate of the value of the insurance claim.

10

89. The system of claim 75,  
wherein the insurance claim comprises a bodily injury claim, and wherein said contributing factor values are relevant to an estimate of a bodily injury general damages value of the bodily injury claim.

15

90. The system of claim 75, further comprising:  
a printer coupled to the CPU, wherein the printer is configured to print a report comprising the set of contributing factors from the sorted table which meet the one or more selection criteria.

20

91. The system of claim 75, further comprising:  
a display device coupled to the CPU, wherein the display device is configured to display a report comprising the set of contributing factors from the sorted table which meet the one or more selection criteria.

25

92. A carrier medium comprising program instructions for identifying one or more contributing factors that may be used to estimate a value of an insurance claim, wherein the program instructions are computer-executable to implement:

30

specifying one or more insurance codes which affect the value of the insurance claim, wherein each insurance code comprises a contributing factor to the value of the insurance claim;

determining one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the insurance codes, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim;

35

storing each of the one or more insurance codes and the corresponding contributing factor values in a table comprising one or more rows, wherein each row of the table comprises one of the insurance codes and the corresponding contributing factor value;

sorting the table by the contributing factor values to generate a sorted table of contributing factor values and corresponding insurance codes; and

identifying and reporting a set of contributing factors from the sorted table which meet one or more selection criteria.

40

93. The carrier medium of claim 92,

wherein said determining the one or more contributing factor values comprises calculating the one or more contributing factor values as a function of one or more business rules.

94. The carrier medium of claim 92,

5 wherein the specifying the one or more insurance codes comprises specifying a claim number for the insurance claim and specifying the one or more insurance codes associated with the claim number.

95. The carrier medium of claim 92,

10 wherein said one or more insurance codes comprise one or more injury codes, wherein each injury code specifies a bodily injury incurred by a claimant of the insurance claim.

96. The carrier medium of claim 95,

15 wherein said one or more insurance codes comprise one or more treatment codes, wherein each treatment code specifies a treatment for at least one of the bodily injuries incurred by the claimant of the insurance claim.

97. The carrier medium of claim 92,

20 wherein the table comprises a table in a relational database.

98. The carrier medium of claim 92,

wherein the table comprises an object-oriented table.

99. The carrier medium of claim 92,

25 wherein each of the one or more contributing factor values is a numeric value.

100. The carrier medium of claim 92,

30 wherein the sorting the table by the contributing factor values comprises sorting the table in ascending order by the contributing factor values.

101. The carrier medium of claim 92,

wherein the sorting the table by the contributing factor values comprises sorting the table in descending order by the contributing factor values.

35 102. The carrier medium of claim 92,

wherein the selection criteria comprise the largest positive of said one or more contributing factor values up to a certain quantity; and

40 wherein the identifying and reporting the set of contributing factors from the sorted table which meet the one or more selection criteria comprise identifying and reporting corresponding contributing factors for a sorted set of the largest positive contributing factor values up to the certain quantity.

103. The carrier medium of claim 102,  
wherein each contributing factor value in the sorted set of the largest positive contributing factor values  
adds to the estimate of the value of the insurance claim.

5

104. The carrier medium of claim 92,  
wherein the selection criteria comprise the largest negative of said one or more contributing factor values  
up to a certain quantity; and  
wherein the identifying and reporting the set of contributing factors from the sorted table which meet the  
one or more selection criteria comprise identifying and reporting corresponding contributing  
factors for a sorted set of the largest negative contributing factor values up to the certain  
quantity.

10

105. The carrier medium of claim 104,  
wherein each contributing factor value in the sorted set of the largest negative contributing factor values  
subtracts from the estimate of the value of the insurance claim.

15

106. The carrier medium of claim 92,  
wherein the insurance claim comprises a bodily injury claim, and wherein said contributing factors are  
relevant to an estimate of a bodily injury general damages value of the bodily injury claim.

20

107. A system comprising:  
a rules engine which is operable to assess a value of an insurance claim as a function of a  
plurality of rules, wherein said plurality of rules use formulas to assess said value of  
said insurance claim;  
a database which stores said formulas usable by said plurality of rules, wherein said database is  
separate from said rules engine.

25

108. The system of claim 107, wherein said database stores formula data which is transformable to said  
formulas, and wherein the system further comprises:  
a translator program which is operable to read said formula data from said database and  
transform said formula data into said formulas usable by said plurality of rules.

30

109. The system of claim 108,  
wherein said formula data is stored in a tabular format in said database.

35

110. The system of claim 108,  
wherein said formula data comprises alphanumeric values stored in said database.

40

111. The system of claim 108,

wherein said formulas are configured to be updated by updating said formula data stored in said database.

112. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a formula identifier.

113. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a sequence number.

114. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a section description.

115. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a page identifier.

116. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a prompt identifier.

117. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises an answer identifier.

118. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a mathematical function.

119. The system of claim 108,

wherein said formula data comprises a plurality of entries in said database, wherein at least one entry comprises a numeric value.

120. The system of claim 108,

wherein said formula data are configured to be modified in response to business requirements of an insurance organization to form modified formula data.

121. The system of claim 108,

wherein said formula data are configured to be modified as a function of business requirements of an insurance organization to form modified formula data;

wherein said translator program is configured to be modified as a function of business requirements of an insurance organization to form a modified translator program; and

5 wherein said modified translator program is configured to read said modified formula data from said database and transform said modified formula data into a modified plurality of formulas.

122. The system of claim 107,

10 wherein said formulas are usable in real-time by said plurality of rules to assess the value of the insurance claim.

123. The system of claim 107,

15 wherein said insurance claim comprises a bodily injury claim, and wherein said value of said insurance claim comprises a bodily injury general damages value.

124. The system of claim 123,

wherein said plurality of rules use said formulas to determine a trauma severity value associated with said bodily injury claim.

20 125. The system of claim 107, further comprising:

a CPU;

a memory coupled to the CPU, wherein said rules engine comprises program instructions which are stored in said memory and executable by said CPU.

25 126. The system of claim 107,

wherein said rules comprise logical instructions for assessing said value of said insurance claim.

127. The system of claim 107,

30 wherein each rule comprises a premise and one or more resulting actions for assessing said value of said insurance claim.

128. The system of claim 107,

35 wherein each of said formulas comprises one or more inputs and one or more functions operating on said one or more inputs to compute one or more outputs.

129. A method comprising:

providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules, wherein said plurality of rules use formulas to assess said value of said insurance claim;

40 providing a database which stores formula data and said formulas for said plurality of rules, wherein said database is separate from said rules engine;

reading said formula data from said database; and  
transforming said formula data into said formulas usable by said plurality of rules.

130. The method of claim 129,  
5 wherein said insurance claim comprises a bodily injury claim, and wherein said value of said insurance claim comprises a bodily injury general damages value.

131. The method of claim 130, further comprising:  
10 assessing said value of said insurance claim as a function of said plurality of rules and said plurality of formulas by determining a trauma severity value associated with said bodily injury claim.

132. The method of claim 129,  
wherein said formula data is stored in a tabular format in said database.

15 133. The method of claim 129,  
wherein said rules engine comprises program instructions which are executable by a computer.

134. The method of claim 129,  
20 wherein said rules comprise logical instructions for assessing said value of said insurance claim.

135. The method of claim 129,  
wherein each rule comprises a premise and one or more resulting actions for assessing said value of said insurance claim.

25 136. The method of claim 129,  
wherein said formulas data comprises alphanumeric values stored in said database.

137. The method of claim 129, further comprising:  
30 updating said formulas by updating said formula data stored in said database.

138. The method of claim 129, further comprising:  
updating said formula data in said database;  
reading said updated formula data from said database; and  
transforming said updated formula data into updated formulas for use by said plurality of rules.

35 139. The method of claim 129, further comprising:  
modifying said formula data in response to business requirements of an insurance organization to form customized formula data.

40 140. The method of claim 129, further comprising:  
modifying said formulas to form modified formulas by using said modified formula data.



141. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a formula identifier.

5

142. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a sequence number.

10

143. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a section description.

15

14. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a page identifier.

20

145. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a prompt identifier.

25

146. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises an answer identifier.

30

147. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a mathematical function.

35

148. The method of claim 129,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a numeric value.

40

149. A carrier medium comprising program instructions, wherein said program instructions are computer-  
executable to implement:  
providing a rules engine which is operable to assess a value of an insurance claim as a function  
of a plurality of rules, wherein said plurality of rules use formulas to assess said value  
of said insurance claim;  
providing a database which stores formula data and said formulas for said plurality of rules,  
wherein said database is separate from said rules engine;  
reading said formula data from said database; and

transforming said formula data into said formulas usable by said plurality of rules.

150. The carrier medium of claim 149,  
wherein said insurance claim comprises a bodily injury claim, and wherein said value of said insurance  
claim comprises a bodily injury general damages value.

151. The carrier medium of claim 150, wherein said program instructions are further computer-executable to  
implement:  
assessing said value of said insurance claim as a function of said plurality of rules and said plurality of  
formulas by determining a trauma severity value associated with said bodily injury claim.

152. The carrier medium of claim 149,  
wherein said formula data is stored in a tabular format in said database.

153. The carrier medium of claim 149,  
wherein said rules engine comprises program instructions which are executable by a computer.

154. The carrier medium of claim 149,  
wherein said rules comprise logical instructions for assessing said value of said insurance claim.

155. The carrier medium of claim 149,  
wherein each rule comprises a premise and one or more resulting actions for assessing said value of said  
insurance claim.

156. The carrier medium of claim 149,  
wherein said formulas data comprises alphanumeric values stored in said database.

157. The carrier medium of claim 149, wherein said program instructions are further computer-executable to  
implement:  
updating said formulas by updating said formula data stored in said database.

158. The carrier medium of claim 149, wherein said program instructions are further computer-executable to  
implement:  
updating said formula data in said database;  
reading said updated formula data from said database; and  
transforming said updated formula data into updated formulas for use by said plurality of rules.

159. The carrier medium of claim 149, wherein said program instructions are further computer-executable to  
implement:  
modifying said formula data in response to business requirements of an insurance organization to form  
modified formula data.

160. The carrier medium of claim 159, wherein said program instructions are further computer-executable to implement:

modifying said formulas to form modified formulas by using said modified formula data.

5

161. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a formula identifier.

10

162. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a sequence number.

15

163. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a section description.

20

164. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a page identifier.

25

165. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a prompt identifier.

30

166. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises an answer identifier.

35

167. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a mathematical function.

40

168. The carrier medium of claim 149,  
wherein said formula data comprises a plurality of entries in said database, wherein at least one entry  
comprises a numeric value.

169. A system comprising:  
a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of  
rules;

a database which stores rules data which is transformable to said plurality of rules, wherein said database is separate from said rules engine.

170. The system of claim 169, further comprising:

a translator program which is operable to read said rules data from said database and transform said rules data into said plurality of rules for use by said rules engine.

171. The system of claim 170,

wherein said translator program is operable to read said rules data from said database.

172. The system of claim 170,

wherein said translator program is programmed in an object-oriented programming language; wherein said translator program comprises a plurality of objects.

173. The system of claim 170,

wherein said translator program is configured to be modified as a function of business requirements of an insurance organization to form a modified translator program.

174. The system of claim 170,

wherein said rules data are configured to be modified as a function of business requirements of an insurance organization to form modified rules data; wherein said translator program is configured to be modified as a function of business requirements of an insurance organization to form a modified translator program; and wherein said customized translator program is configured to read said modified rules data from said database and transform said modified rules data into a modified plurality of rules.

175. The system of claim 169,

wherein said plurality of rules are operable in real-time by said rules engine to assess said value of said insurance claim.

176. The system of claim 169,

wherein said rules data are configured to be modified as a function of business requirements of an insurance organization to form modified rules data.

177. The system of claim 169,

wherein said insurance claim comprises a bodily injury claim, and wherein said value of said insurance claim comprises a trauma severity value.

178. The system of claim 169,

wherein said rules data is stored in a tabular format in said database.

179. The system of claim 169, further comprising:  
a CPU;  
a memory coupled to the CPU, wherein said rules engine comprises program instructions which are  
stored in said memory and executable by said CPU.

5

180. The system of claim 169,  
wherein said rules comprise logical instructions for assessing said value of said insurance claim.

181. The system of claim 169,  
wherein each rule comprises a premise and one or more resulting actions for assessing said value of said  
insurance claim.

10

182. The system of claim 169, further comprising:  
a reporter program which is operable to read said rules data in said database and generate reports using  
said rules data.

15

183. The system of claim 169,  
wherein said rules data comprises alphanumeric values stored in said database.

20

184. The system of claim 169,  
wherein said plurality of rules are configured to be updated by updating said rules data stored in said  
database.

185. A method comprising:  
providing a rules engine which is operable to assess a value of an insurance claim as a function of a  
plurality of rules;  
providing a database which stores rules data which is transformable to said plurality of rules, wherein  
said database is separate from said rules engine;  
reading said rules data from said database; and  
transforming said rules data into said plurality of rules for use by said rules engine.

25

30

186. The method of claim 185, further comprising:  
assessing said value of said insurance claim as a function of said plurality of rules by determining a  
trauma severity value, wherein said insurance claim comprises a bodily injury claim.

35

187. The method of claim 185,  
wherein said rules data is stored in a tabular format in said database.

188. The method of claim 185,  
wherein said rules engine comprises program instructions which are executable by a computer.

40

189. The method of claim 185,  
wherein said rules comprise logical instructions for assessing said value of said insurance claim.
190. The method of claim 185,  
5 wherein each rule comprises a premise and one or more resulting actions for assessing said value of said insurance claim.
191. The method of claim 185,  
10 wherein said rules data comprises alphanumeric values stored in said database.
192. The method of claim 185, further comprising:  
updating said plurality of rules by updating said rules data stored in said database.
193. The method of claim 185, further comprising:  
15 updating said rules data in said database;  
reading said updated rules data from said database; and  
transforming said updated rules data into updated plurality of rules for use by said rules engine.
194. The method of claim 185, further comprising:  
20 modifying said rules data as a function of business requirements of an insurance organization to form modified rules data.
195. The method of claim 194, further comprising:  
25 modifying said plurality of rules to form a modified plurality of rules by using said modified rules data.
196. The method of claim 185,  
30 wherein said rules data comprises a plurality of units of line text and a plurality of templates, wherein each of said templates comprises one or more slots, and wherein said transforming said rules data into said plurality of rules comprises, for each of said plurality of rules, replacing said one or more of said slots in one of said templates with one or more of said units of line text.
197. A carrier medium comprising program instructions, wherein said program instructions are computer-executable to implement:  
35 providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;  
providing a database which stores rules data which is transformable to said plurality of rules, wherein said database is separate from said rules engine;  
reading said rules data from said database; and  
40 transforming said rules data into said plurality of rules for use by said rules engine.

198. The carrier medium of claim 197, wherein said program instructions are further computer-executable to implement:

assessing said value of said insurance claim as a function of said plurality of rules by determining a trauma severity value, wherein said insurance claim comprises a bodily injury claim.

5

199. The carrier medium of claim 197,  
wherein said rules data is stored in a tabular format in said database.

200. The carrier medium of claim 197,  
wherein said rules engine comprises program instructions which are executable by a computer.

10

201. The carrier medium of claim 197,  
wherein said rules comprise logical instructions for assessing said value of said insurance claim.

15

202. The carrier medium of claim 197,  
wherein each rule comprises a premise and one or more resulting actions for assessing said value of said insurance claim.

203. The carrier medium of claim 197,  
wherein said rules data comprises alphanumeric values stored in said database.

20

204. The carrier medium of claim 197, wherein said program instructions are further computer-executable to implement:  
updating said plurality of rules by updating said rules data stored in said database.

25

205. The carrier medium of claim 197, wherein said program instructions are further computer-executable to implement:  
updating said rules data in said database;  
reading said updated rules data from said database;  
transforming said updated rules data into updated plurality of rules for use by said rules engine.

30

206. The carrier medium of claim 197, wherein said program instructions are further computer-executable to implement:  
modifying said rules data as a function of business requirements of an insurance organization to form modified rules data.

35

207. The carrier medium of claim 206, wherein said program instructions are further computer-executable to implement:  
modifying said plurality of rules to form a modified plurality of rules by using said modified rules data.

40

208. The carrier medium of claim 197,

wherein said rules data comprises a plurality of units of line text and a plurality of templates, wherein each of said templates comprises one or more slots, and wherein said transforming said rules data into said plurality of rules comprises, for each of said plurality of rules, replacing said one or more of said slots in one of said templates with one or more of said units of line text.

5

209. A method comprising:

an insurance claims processing program generating a request to display a message, wherein the request comprises a requested message code;

10

searching a database for a matching entry which matches the requested message code, wherein the database stores a plurality of entries including the matching entry, wherein each entry in the database comprises a message code and a corresponding message text;

retrieving the matching entry from the database in response to said searching the database for the matching entry which matches the requested message code, wherein the matching entry comprises a matching message text; and

15

displaying the matching message text corresponding to the requested message code, wherein the message text is configured to assist a user in processing an insurance claim using the insurance claims processing program.

210. The method of claim 209, further comprising:

20

specifying the message text of each entry in the database during an installation of the insurance claims processing program on a computer system.

211. The method of claim 209, further comprising:

25

specifying the message text of each entry in the database during an installation of the database on a computer system.

212. The method of claim 211, further comprising:

30

updating the message text of each entry in the database by re-installing the database on the computer system without re-installing the insurance claims processing program on the computer system.

213. The method of claim 209, further comprising:

35

customizing the message text of one or more entries in the database for a particular insurance organization during an installation of the insurance claims processing program on a computer system.

214. The method of claim 209,

wherein the message text of one or more entries in the database is localized for use in a particular geographical location.

40

215. The method of claim 209,

wherein the database comprises a relational database.



216. The method of claim 209,  
wherein the database comprises an object-oriented database.
- 5 217. The method of claim 209,  
wherein each message code comprises a message section and a message code identifier.
218. The method of claim 209,  
wherein the insurance claim comprises a bodily injury claim, and wherein said processing the insurance  
10 claim comprises processing the bodily injury claim to estimate a bodily injury general damages  
value.
219. The method of claim 209,  
wherein the requested message text comprises information relevant to an estimate of a value of the  
15 insurance claim.
220. The method of claim 209,  
wherein the requested message code comprises an injury code which identifies a specific bodily injury,  
and wherein the requested message text comprises a name of the specific bodily injury.  
20
221. The method of claim 209,  
wherein the requested message code comprises a treatment code which identifies a specific injury  
treatment, and wherein the requested message text comprises a name of the specific injury  
treatment.  
25
222. The method of claim 209,  
wherein said displaying the matching message text corresponding to the requested message code  
comprises the insurance claims processing program displaying the matching message text  
corresponding to the requested message code.  
30
223. The method of claim 209,  
wherein said displaying the matching message text corresponding to the requested message code  
comprises displaying the matching message text on a display device coupled to a computer  
system.  
35
224. The method of claim 209,  
wherein each message code comprises a sequence of alphanumeric values, wherein each sequence is  
unique relative to the other sequences.
- 40 225. A system comprising:  
a CPU;

a memory coupled to the CPU, wherein the memory stores an insurance claims processing program which is executable by the CPU;

a display device coupled to the CPU;

a database coupled to the CPU, wherein the database stores a plurality of entries, wherein each entry in the database comprises a message code and a corresponding message text;

wherein the memory stores program instructions which are executable by the CPU to:

generate a request to display a message, wherein the request comprises a requested message code;

search the database for a matching entry which matches the requested message code;

retrieve the matching entry from the database, wherein the matching entry comprises a matching message text; and

display the matching message text corresponding to the requested message code on the display device, wherein the message text is configured to assist a user in processing an insurance claim using the insurance claims processing program.

226. The system of claim 225,

wherein the message text of each entry in the database is configured to be specified during an installation of the insurance claims processing program.

227. The system of claim 225,

wherein the message text of each entry in the database is configured to be specified during an installation of the database.

228. The system of claim 227,

wherein the message text of each entry in the database is configured to be updated by re-installing the database on the computer system without re-installing the insurance claims processing program.

229. The system of claim 225,

wherein the message text of one or more entries in the database is customized for use by a particular insurance organization.

230. The system of claim 225,

wherein the message text of one or more entries in the database is localized for use in a particular geographical location.

231. The system of claim 225,

wherein the database comprises a relational database.

232. The system of claim 225,

wherein the database comprises an object-oriented database.

233. The system of claim 225,  
wherein each message code comprises a message section and a message code identifier.

234. The system of claim 225,  
5 wherein the insurance claim comprises a bodily injury claim, and wherein said processing the insurance claim comprises processing the bodily injury claim to estimate a bodily injury general damages value.

235. The system of claim 225,  
10 wherein the requested message text comprises information relevant to an estimate of a value of the insurance claim.

236. The system of claim 225,  
15 wherein the requested message code comprises an injury code which identifies a specific bodily injury, and wherein the requested message text comprises a name of the specific bodily injury.

237. The system of claim 225,  
wherein the requested message code comprises a treatment code which identifies a specific injury treatment, and wherein the requested message text comprises a name of the specific injury treatment.  
20

238. The system of claim 225,  
wherein each message code comprises a sequence of alphanumeric values, wherein each sequence is unique relative to the other sequences.  
25

239. A carrier medium comprising program instructions, wherein the program instructions are executable by a computer system to implement a method of:  
generating a request to display a message, wherein the request comprises a requested message code;  
30 searching a database for a matching entry which matches the requested message code, wherein the database stores a plurality of entries including the matching entry, wherein each entry in the database comprises a message code and a corresponding message text;  
retrieving the matching entry from the database in response to said searching the database for the matching entry which matches the requested message code, wherein the matching entry comprises a matching message text; and  
35 displaying the matching message text corresponding to the requested message code, wherein the message text is configured to assist a user in processing an insurance claim using an insurance claims processing program.

240. The carrier medium of claim 239,  
40 wherein the message text of each entry in the database is configured to be specified during an installation of the insurance claims processing program.

241. The carrier medium of claim 239,  
wherein the message text of each entry in the database is configured to be specified during an installation  
of the database.
- 5
242. The carrier medium of claim 241,  
wherein the message text of each entry in the database is configured to be updated by re-installing the  
database on the computer system without re-installing the insurance claims processing program.
- 10
243. The carrier medium of claim 239,  
wherein the message text of one or more entries in the database is customized for use by a particular  
insurance organization.
244. The carrier medium of claim 239,  
wherein the message text of one or more entries in the database is localized for use in a particular  
geographical location.
- 15
245. The carrier medium of claim 239,  
wherein the database comprises a relational database.
- 20
246. The carrier medium of claim 239,  
wherein the database comprises an object-oriented database.
247. The carrier medium of claim 239,  
wherein each message code comprises a message section and a message code identifier.
- 25
248. The carrier medium of claim 239,  
wherein the insurance claim comprises a bodily injury claim, and wherein said processing the insurance  
claim comprises processing the bodily injury claim to estimate a bodily injury general damages  
value.
- 30
249. The carrier medium of claim 239,  
wherein the requested message text comprises information relevant to an estimate of a value of the  
insurance claim.
- 35
250. The carrier medium of claim 239,  
wherein the requested message code comprises an injury code which identifies a specific bodily injury,  
and wherein the requested message text comprises a name of the specific bodily injury.
- 40
251. The carrier medium of claim 239,

wherein the requested message code comprises a treatment code which identifies a specific injury treatment, and wherein the requested message text comprises a name of the specific injury treatment.

5     252.     The carrier medium of claim 239,  
          wherein said displaying the matching message text corresponding to the requested message code  
          comprises the insurance claims processing program displaying the matching message text  
          corresponding to the requested message code.

10    253.     The carrier medium of claim 239,  
          wherein said displaying the matching message text corresponding to the requested message code  
          comprises displaying the matching message text on a display device coupled to a computer  
          system.

15    254.     The carrier medium of claim 239,  
          wherein each message code comprises a sequence of alphanumeric values, wherein each sequence is  
          unique relative to the other sequences.

20    255.     A method comprising:  
          installing an insurance claims processing program on at least one of a plurality of computer systems  
          operated by an insurance organization, wherein the insurance claims processing program is  
          configured to assist a user employed by the insurance organization in processing insurance  
          claims; and  
          installing a message database on at least one of the plurality of computer systems operated by the  
25           insurance organization, wherein the message database comprises a plurality of entries, wherein  
          each entry comprises a message code and a corresponding message text, and wherein the  
          messages are configured to assist the user in said processing the insurance claims using the  
          insurance claims processing program;  
          wherein the insurance claims processing program is configured to:  
30           generate a request to display a message, wherein the request comprises a requested message  
          code;  
          search the message database for a matching entry which matches the requested message code;  
          retrieving the matching entry from the message database, wherein the matching entry comprises  
          a matching message text; and  
35           display the matching message text on a display device coupled to at least one of the plurality of  
          computer systems.

40    256.     The method of claim 255,  
          wherein said installing the message database comprises specifying the message text of each entry in the  
          message database.

257. The method of claim 255, further comprising:  
updating the message text of each entry in the message database by re-installing the message database  
without re-installing the insurance claims processing program.

5 258. The method of claim 255, further comprising:  
customizing the message text of one or more entries in the message database for the insurance  
organization prior to said installing the message database.

10 259. The method of claim 255,  
wherein the message text of one or more entries in the message database is localized for use in a  
particular geographical location.

15 260. The method of claim 255,  
wherein the insurance claims comprises bodily injury claims, and wherein said processing the insurance  
claims comprises processing the bodily injury claims to estimate bodily injury general damages  
values.

20 261. The method of claim 255,  
wherein the requested message text comprises information relevant to estimated values of the insurance  
claims.

25 262. The method of claim 255,  
wherein the requested message code comprises an injury code which identifies a specific bodily injury,  
and wherein the requested message text comprises a name of the specific bodily injury.

30 263. The method of claim 255,  
wherein the requested message code comprises a treatment code which identifies a specific injury  
treatment, and wherein the requested message text comprises a name of the specific injury  
treatment.

35 264. The method of claim 255,  
wherein each message code comprises a sequence of alphanumeric values, wherein each sequence is  
unique relative to the other sequences.

40 265. A method for determining relevance values of terms in a help database in a computer-based insurance  
claims processing system, the method comprising:  
determining a word position of an occurrence of a term in a portion of a document in the help database,  
wherein the portion of the document comprises one or more words;  
determining a total word count of the portion of the document; and  
determining a relevance value for the occurrence of the term in the portion of the document using the  
word position of the occurrence and the total word count of the portion of the document.

266. The method of claim 265,  
wherein said determining the relevance value for the occurrence comprises:  
dividing the word position by the total word count to produce the relevance value for the  
occurrence.
267. The method of claim 265, further comprising:  
multiplying the relevance value by a first scaling factor to produce a scaled relevance value.
268. The method of claim 265, further comprising:  
rounding the relevance value to a number of significant digits.
269. The method of claim 265, further comprising:  
storing the determined relevance value for the occurrence in an entry in a table in the help database.
270. The method of claim 265, further comprising:  
numbering the one or more words in the portion of the document from N down to 1, wherein N is the  
total word count of the portion of the document;  
wherein said determining the word position of the occurrence comprises:  
determining the word number of a first word of the term in the one or more words in the portion  
of the document; and  
wherein said determining the relevance value for the occurrence comprises:  
dividing the word position by the total word count to produce the relevance value for the  
occurrence.
271. The method of claim 265, further comprising:  
numbering the one or more words in the portion of the document from 1 up to N, wherein N is the total  
word count of the portion of the document;  
wherein said determining the word position of the occurrence comprises:  
determining a word number of a first word of the term in the one or more words in the portion  
of the document, wherein the word number of the first word of the term is used as the  
word position of the occurrence; and  
wherein said determining the relevance value for the occurrence comprises:  
subtracting the word position from the total word count to produce a first results;  
adding one to the first results to produce a second results; and  
dividing the second results by the total word count to produce the relevance value for the  
occurrence.
272. The method of claim 265,  
wherein the portion of the document is a text section.

273. The method of claim 265,  
wherein the portion of the document is a header.

274. The method of claim 265,  
5 wherein said determining the relevance value for the occurrence comprises:  
dividing the word position by the total word count to produce a positional relevance value for  
the occurrence;  
dividing a number of words in the term by the total word count of the portion to produce a  
percentage relevance value for the occurrence; and  
10 combining the positional relevance value and the percentage relevance value to produce the  
relevance value for the occurrence.

275. The method of claim 274, further comprising:  
multiplying the relevance value by a second scaling factor to produce a scaled relevance value.

276. The method of claim 274, further comprising:  
rounding the relevance value to a number of significant digits.

277. The method of claim 274, further comprising:  
20 storing the determined relevance value for the occurrence in an entry in a table in the help database.

278. The method of claim 274,  
wherein said combining the positional relevance value and the percentage relevance value to produce the  
relevance value for the occurrence comprises:  
25 multiplying the positional relevance value by a third scaling factor to produce a scaled  
positional relevance value;  
multiplying the percentage relevance value by a fourth scaling factor to produce a scaled  
percentage relevance value; and  
adding the scaled positional relevance value and the scaled percentage relevance value to  
30 produce the relevance value for the occurrence.

279. The method of claim 278,  
wherein the third scaling factor is substantially equal to  $(1 - \text{the fourth scaling factor})$ .

35 280. A method for determining relevance values of terms in a help database in a computer-based insurance  
claims processing system, the method comprising:  
determining a word position of an occurrence of a term in a portion of a document in the help database,  
wherein the portion of the document comprises one or more words;  
determining a total word count of the portion of the document;  
40 determining if the portion of the document is a header or a text section; and



determining a relevance value for the occurrence of the term in the portion of the document using the word position of the occurrence and the total word count of the portion of the document;  
wherein, if the portion of the document is a text section, said determining the relevance value for the occurrence comprises:

5           dividing the word position by the total word count to produce the relevance value for the occurrence; and

wherein, if the portion of the document is a header, said determining the relevance value for the occurrence comprises:

10           dividing the word position by the total word count to produce a positional relevance value for the occurrence;

          dividing a number of words in the term by the total word count of the portion to produce a percentage relevance value for the occurrence; and

          combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence.

15

281.   The method of claim 280, further comprising:

          providing a first scaling factor for occurrences in text sections;

          wherein, if the portion of the document is a text section, the method further comprises:

20           multiplying the relevance value by the first scaling factor to produce a text section relevance value.

282.   The method of claim 281, further comprising:

          providing a second scaling factor for occurrences in headers;

          wherein, if the portion of the document is a header, the method further comprises:

25           multiplying the relevance value by the second scaling factor to produce a header relevance value.

283.   The method of claim 282,

          wherein the second scaling factor is substantially equal to  $(1 - \text{the first scaling factor})$ .

30

284.   The method of claim 282,

          wherein, if the portion of the document is a header, the method further comprises:

          adjusting the header relevance value by adding the first scaling factor to the header relevance value.

35

285.   The method of claim 280, further comprising:

          rounding the relevance value to a number of significant digits.

286.   The method of claim 280, further comprising:

40           storing the determined relevance value for the occurrence in an entry in a table in the help database.

287. The method of claim 280,  
wherein said combining the positional relevance value and the percentage relevance value to produce the  
relevance value for the occurrence comprises:  
multiplying the positional relevance value by a third scaling factor to produce a scaled  
positional relevance value;  
multiplying the percentage relevance value by a fourth scaling factor to produce a scaled  
percentage relevance value; and  
adding the scaled positional relevance value and the scaled percentage relevance value to  
produce the relevance value for the occurrence.

288. The method of claim 287,  
wherein the third scaling factor is substantially equal to  $(1 - \text{the fourth scaling factor})$ .

289. A method for determining relevance values of terms in a computer-based insurance claims processing  
system comprising a help database, wherein the help database comprises one or more documents, the method  
comprising:

searching the one or more documents in the help database for occurrences of one or more terms used in  
the insurance claims processing system;

locating in the one or more documents one or more occurrences of the one or more terms in response to  
said searching;

determining a relevance value for each of the one or more occurrences located in the one or more  
documents; and

storing the determined relevance value for each of the one or more occurrences in a table in the help  
database;

wherein the relevance values for the one or more occurrences are used in displaying the one or more  
occurrences of the one or more terms in order of relevance in the insurance claims processing  
system.

290. The method of claim 289,  
wherein the one or more documents comprise headers and text sections;  
wherein said determining the relevance value for each of the one or more occurrences located in the one  
or more documents comprises:  
determining a header relevance value for an occurrence if the occurrence is in a header; and  
determining a text section relevance value for the occurrence if the occurrence is in a text  
section.

291. The method of claim 290,  
wherein the text section comprises N words;  
wherein the occurrence of the term is at an Xth word in the text section, wherein X is from 1 to N, and  
wherein 1 is a location of a first word in the text section;

wherein said determining the text section relevance value for the occurrence if the occurrence is in the text section comprises:

determining the text section relevance value using N and X, wherein the text section relevance value is higher the closer the occurrence is to the beginning of the text section.

5

292. The method of claim 290,

wherein the header comprises N words;

wherein the occurrence of the term is at an Xth word in the header, wherein X is from 1 to N, and wherein 1 is a location of a first word in the header;

10

wherein the term comprises T words, wherein T is from 1 to N;

wherein said determining the header relevance value for the occurrence if the occurrence is in a header comprises:

determining a positional relevance value using N and X, wherein the determined positional relevance value is higher the closer the occurrence is to the beginning of the header;

15

determining a percentage relevance value using T and N, wherein the percentage relevance value is the percentage of the header occupied by the term; and

combining the positional relevance value and the percentage relevance value to produce the header relevance value.

20

293. An insurance claims processing system comprising:

a computer system including a memory medium;

a help database for the insurance claims processing system stored in the memory medium, wherein the help database comprises one or more documents related to the processing of insurance claims in the insurance claims processing system and one or more tables configured for use in locating occurrences of terms in the help database;

25

program instructions stored in the memory medium and executable within the computer system, wherein the program instructions are executable to:

determine a word position of an occurrence of a term in a portion of a first document in the help database, wherein the portion of the first document comprises one or more words;

30

determine a total word count of the portion of the first document; and

determine a relevance value for the occurrence of the term in the portion of the first document using the word position of the occurrence and the total word count of the portion of the first document.

35

294. The system of claim 293,

wherein, in said determining the relevance value for the occurrence, the program instructions are further executable to:

divide the word position by the total word count to produce the relevance value for the occurrence.

40

295. The system of claim 293, wherein the program instructions are further executable to:

multiply the relevance value by a first scaling factor to produce a scaled relevance value.

296. The system of claim 293, wherein the program instructions are further executable to:  
round the relevance value to a number of significant digits.

5

297. The system of claim 293, wherein the program instructions are further executable to:  
store the determined relevance value for the occurrence in an entry in a first table in the help database.

298. The system of claim 293, wherein the program instructions are further executable to:  
number the one or more words in the portion of the document from N down to 1, wherein N is the total  
word count of the portion of the document;  
wherein, in said determining the word position of the occurrence, the program instructions are further  
executable to:  
determine the word number of a first word of the term in the one or more words in the portion of  
the document; and  
wherein, in said determining the relevance value for the occurrence, the program instructions are further  
executable to:  
divide the word position by the total word count to produce the relevance value for the  
occurrence.

10

15

20

299. The system of claim 293, wherein the program instructions are further executable to:  
number the one or more words in the portion of the document from 1 up to N, wherein N is the total  
word count of the portion of the document;  
wherein, in said determining the word position of the occurrence, the program instructions are further  
executable to:  
determine a word number of a first word of the term in the one or more words in the portion of  
the document, wherein the word number of the first word of the term is used as the  
word position of the occurrence; and  
wherein, in said determining the relevance value for the occurrence, the program instructions are further  
executable to:  
subtract the word position from the total word count to produce a first results;  
add one to the first results to produce a second results; and  
divide the second results by the total word count to produce the relevance value for the  
occurrence.

25

30

35

300. The system of claim 293,  
wherein the portion of the document is a text section.

301. The system of claim 293,  
wherein the portion of the document is a header.

40

302. The system of claim 293,  
wherein, in said determining the relevance value for the occurrence, the program instructions are further executable to:  
divide the word position by the total word count to produce a positional relevance value for the  
5 occurrence;  
divide a number of words in the term by the total word count of the portion to produce a  
percentage relevance value for the occurrence; and  
combine the positional relevance value and the percentage relevance value to produce the  
relevance value for the occurrence.
- 10 303. The system of claim 302, wherein the program instructions are further executable to:  
multiply the relevance value by a second scaling factor to produce a scaled relevance value.
304. The system of claim 302, wherein the program instructions are further executable to:  
15 round the relevance value to a number of significant digits.
305. The system of claim 302, wherein the program instructions are further executable to:  
store the determined relevance value for the occurrence in an entry in a first table in the help database.
- 20 306. The system of claim 302,  
wherein, in said combining the positional relevance value and the percentage relevance value to produce  
the relevance value for the occurrence, the program instructions are further executable to:  
multiply the positional relevance value by a third scaling factor to produce a scaled positional  
relevance value;  
25 multiply the percentage relevance value by a fourth scaling factor to produce a scaled  
percentage relevance value; and  
add the scaled positional relevance value and the scaled percentage relevance value to produce  
the relevance value for the occurrence.
- 30 307. The system of claim 306,  
wherein the third scaling factor is substantially equal to  $(1 - \text{the fourth scaling factor})$ .
308. An insurance claims processing system comprising:  
35 a computer system including a memory medium;  
a help database for the insurance claims processing system stored in the memory medium, wherein the  
help database comprises one or more documents related to the processing of insurance claims in  
the insurance claims processing system and one or more tables configured for use in locating  
occurrences of terms in the help database;  
40 program instructions stored in the memory medium and executable within the computer system, wherein  
the program instructions are executable to:

determine a word position of an occurrence of a term in a portion of a document in the help database, wherein the portion of the document comprises one or more words;  
determine a total word count of the portion of the document;  
determine if the portion of the document is a header or a text section; and  
5 determine a relevance value for the occurrence of the term in the portion of the document using the word position of the occurrence and the total word count of the portion of the document;  
wherein, if the portion of the document is a text section, in said determining the relevance value for the occurrence, the program instructions are further executable to:  
10 divide the word position by the total word count to produce the relevance value for the occurrence; and  
wherein, if the portion of the document is a header, in said determining the relevance value for the occurrence, the program instructions are further operable to:  
divide the word position by the total word count to produce a positional relevance  
15 value for the occurrence;  
divide a number of words in the term by the total word count of the portion to produce a percentage relevance value for the occurrence; and  
combine the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence.

20 309. The system of claim 308,  
wherein, if the portion of the document is a text section, the program instructions are further operable to:  
multiply the relevance value by a first scaling factor to produce a text section relevance value;  
wherein, if the portion of the document is a header, the program instructions are further operable to:  
25 multiply the relevance value by a second scaling factor to produce a header relevance value; and  
wherein the second scaling factor is substantially equal to (1 - the first scaling factor).

310. The system of claim 309,  
wherein, if the portion of the document is a header, the program instructions are further operable to:  
30 adjust the header relevance value by adding the first scaling factor to the header relevance value.

311. The system of claim 308, wherein the program instructions are further operable to:  
store the determined relevance value for the occurrence in an entry in a first table in the help database.

35 312. The system of claim 308,  
wherein, in said combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence, the program instructions are further operable to:  
multiply the positional relevance value by a third scaling factor to produce a scaled positional  
relevance value;  
40 multiply the percentage relevance value by a fourth scaling factor to produce a scaled percentage relevance value; and

add the scaled positional relevance value and the scaled percentage relevance value to produce the relevance value for the occurrence; and  
wherein the third scaling factor is substantially equal to (1 - the fourth scaling factor).

5     313.     An insurance claims processing system comprising:  
a computer system including a memory medium;  
a help database for the insurance claims processing system stored in the memory medium, wherein the  
help database comprises one or more documents related to the processing of insurance claims in  
the insurance claims processing system and one or more tables configured for use in locating  
10           occurrences of terms in the help database;  
program instructions stored in the memory medium and executable within the computer system, wherein  
the program instructions are executable to:  
search the one or more documents in the help database for occurrences of one or more terms  
used in the insurance claims processing system;  
15           locate in the one or more documents one or more occurrences of the one or more terms in  
response to said searching;  
determine a relevance value for each of the one or more occurrences located in the one or more  
documents; and  
store the determined relevance value for each of the one or more occurrences in a table in the  
20           help database;  
wherein the relevance values for the one or more occurrences are used in displaying the one or more  
occurrences of the one or more terms in order of relevance in the insurance claims processing  
system.

25     314.     The system of claim 313,  
wherein the one or more documents comprise headers and text sections; and  
wherein, in said determining the relevance value for each of the one or more occurrences located in the  
one or more documents, the program instructions are further operable to:  
determine a header relevance value for an occurrence if the occurrence is in a header; and  
30           determine a text section relevance value for the occurrence if the occurrence is in a text section.

315.     The system of claim 314, wherein the program instructions are further operable to:  
determine a number of words in the text section, wherein the number of words in the text section is  
expressed as N;  
35           determine a position of the term in the text section, wherein the position of the term is at an Xth word in  
the text section, wherein X is from 1 to N, and wherein 1 is a location of a first word in the text  
section;  
wherein, in said determining the text section relevance value for the occurrence if the occurrence is in the  
text section, the program instructions are further operable to:

determine the text section relevance value using the number of words in the text section and position of the term in the text section, wherein the text section relevance value is higher the closer the occurrence is to the beginning of the text section.

- 5     316.     The system of claim 314, wherein the program instructions are further operable to:  
determine a number of words in the header, wherein the number of words in the header is expressed as  
N;  
determine a position of the term in the header, wherein the position of the term is at an Xth word in the  
header, wherein X is from 1 to N, and wherein 1 is a location of a first word in the header;  
10     determine the number of words in the term, wherein the term comprises T words, wherein T is from 1 to  
N;  
wherein, in said determining the header relevance value for the occurrence if the occurrence is in a  
header, the program instructions are further operable to:  
determine a positional relevance value using the number of words in the header and the position  
15     of the term in the header, wherein the determined positional relevance value is higher  
the closer the occurrence is to the beginning of the header;  
determine a percentage relevance value using the number of words in the term and the number  
of words in the header, wherein the percentage relevance value is the percentage of the  
header occupied by the term; and  
20     combine the positional relevance value and the percentage relevance value to produce the  
header relevance value.

317.     A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:  
25     determining a word position of an occurrence of a term in a portion of a document in a help database in a  
computer-based insurance claims processing system, wherein the portion of the document  
comprises one or more words;  
determining a total word count of the portion of the document; and  
determining a relevance value for the occurrence of the term in the portion of the document using the  
30     word position of the occurrence and the total word count of the portion of the document.

318.     The carrier medium of claim 317,  
wherein, in said determining the relevance value for the occurrence, the program instructions are further  
computer-executable to implement:  
35     dividing the word position by the total word count to produce the relevance value for the  
occurrence.

319.     The carrier medium of claim 317, wherein the program instructions are further computer-executable to  
implement:  
40     multiplying the relevance value by a first scaling factor to produce a scaled relevance value.



320. The carrier medium of claim 317, wherein the program instructions are further computer-executable to implement:

storing the determined relevance value for the occurrence in an entry in a table in the help database.

5 321. The carrier medium of claim 317, wherein the program instructions are further computer-executable to implement:

numbering the one or more words in the portion of the document from N down to 1, wherein N is the total word count of the portion of the document;

wherein, in said determining the word position of the occurrence, the program instructions are further computer-executable to implement:

10 determining the word number of a first word of the term in the one or more words in the portion of the document; and

wherein, in said determining the relevance value for the occurrence, the program instructions are further computer-executable to implement:

15 dividing the word position by the total word count to produce the relevance value for the occurrence.

322. The carrier medium of claim 317, wherein the program instructions are further computer-executable to implement:

20 numbering the one or more words in the portion of the document from 1 up to N, wherein N is the total word count of the portion of the document;

wherein, in said determining the word position of the occurrence, the program instructions are further computer-executable to implement:

25 determining a word number of a first word of the term in the one or more words in the portion of the document, wherein the word number of the first word of the term is used as the word position of the occurrence; and

wherein, in said determining the relevance value for the occurrence, the program instructions are further computer-executable to implement:

subtracting the word position from the total word count to produce a first results;

30 adding one to the first results to produce a second results; and

dividing the second results by the total word count to produce the relevance value for the occurrence.

323. The carrier medium of claim 317,  
35 wherein the portion of the document is a text section.

324. The carrier medium of claim 317,  
wherein the portion of the document is a header.

40 325. The carrier medium of claim 317,

wherein, in said determining the relevance value for the occurrence, the program instructions are further computer-executable to implement:

dividing the word position by the total word count to produce a positional relevance value for the occurrence;

5       dividing a number of words in the term by the total word count of the portion to produce a percentage relevance value for the occurrence;

combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence;

10       multiplying the relevance value by a second scaling factor to produce a scaled relevance value; and

storing the determined relevance value for the occurrence in an entry in a table in the help database.

326.   The carrier medium of claim 325,

15       wherein, in said combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence, the program instructions are further computer-executable to implement:

multiplying the positional relevance value by a third scaling factor to produce a scaled positional relevance value;

20       multiplying the percentage relevance value by a fourth scaling factor to produce a scaled percentage relevance value; and

adding the scaled positional relevance value and the scaled percentage relevance value to produce the relevance value for the occurrence;

25       wherein the third scaling factor is substantially equal to (1 - the fourth scaling factor).

327.   A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

30       determining a word position of an occurrence of a term in a portion of a document in a help database in a computer-based insurance claims processing system, wherein the portion of the document comprises one or more words;

determining a total word count of the portion of the document;

determining if the portion of the document is a header or a text section; and

determining a relevance value for the occurrence of the term in the portion of the document using the word position of the occurrence and the total word count of the portion of the document;

35       wherein, if the portion of the document is a text section, said determining the relevance value for the occurrence comprises:

dividing the word position by the total word count to produce the relevance value for the occurrence; and

40       wherein, if the portion of the document is a header, said determining the relevance value for the occurrence comprises:

dividing the word position by the total word count to produce a positional relevance value for the occurrence;

dividing a number of words in the term by the total word count of the portion to produce a percentage relevance value for the occurrence; and

5 combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence.

328. The carrier medium of claim 327, wherein the program instructions are further computer-executable to implement:

10 wherein, if the portion of the document is a text section, the program instructions are further computer-executable to implement:

multiplying the relevance value by a first scaling factor to produce a text section relevance value;

15 wherein, if the portion of the document is a header, the program instructions are further computer-executable to implement:

multiplying the relevance value by a second scaling factor to produce a header relevance value; and

adjusting the header relevance value by adding the first scaling factor to the header relevance value; and

20 wherein the second scaling factor is substantially equal to (1 - the first scaling factor).

329. The carrier medium of claim 327, wherein the program instructions are further computer-executable to implement:

25 storing the determined relevance value for the occurrence in an entry in a table in the help database.

330. The carrier medium of claim 327,

wherein, in said combining the positional relevance value and the percentage relevance value to produce the relevance value for the occurrence, the program instructions are further computer-executable to implement:

30 multiplying the positional relevance value by a third scaling factor to produce a scaled positional relevance value;

multiplying the percentage relevance value by a fourth scaling factor to produce a scaled percentage relevance value; and

35 adding the scaled positional relevance value and the scaled percentage relevance value to produce the relevance value for the occurrence;

wherein the third scaling factor is substantially equal to (1 - the fourth scaling factor).

331. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

40 searching one or more documents in a help database in a computer-based insurance claims processing system for occurrences of one or more terms used in the insurance claims processing system;

locating in the one or more documents one or more occurrences of the one or more terms in response to said searching;  
determining a relevance value for each of the one or more occurrences located in the one or more documents; and  
5 storing the determined relevance value for each of the one or more occurrences in a table in the help database;  
wherein the relevance values for the one or more occurrences are used in displaying the one or more occurrences of the one or more terms in order of relevance in the insurance claims processing system.

10 332. The carrier medium of claim 331,  
wherein the one or more documents comprise headers and text sections;  
wherein, in said determining the relevance value for each of the one or more occurrences located in the one or more documents, the program instructions are further computer-executable to implement:  
15 determining a header relevance value for an occurrence if the occurrence is in a header; and  
determining a text section relevance value for the occurrence if the occurrence is in a text section.

20 333. The carrier medium of claim 332, wherein the program instructions are further computer-executable to implement:  
determining that the text section comprises N words;  
determining that the occurrence of the term is at an Xth word in the text section, wherein X is from 1 to N, and wherein 1 is a location of a first word in the text section;  
wherein, in said determining the text section relevance value for the occurrence if the occurrence is in the  
25 text section, the program instructions are further computer-executable to implement:  
determining the text section relevance value using N and X, wherein the text section relevance value is higher the closer the occurrence is to the beginning of the text section.

30 334. The carrier medium of claim 332, wherein the program instructions are further computer-executable to implement:  
determining that the text section comprises N words;  
determining that the occurrence of the term is at an Xth word in the header, wherein X is from 1 to N, and wherein 1 is a location of a first word in the header;  
determining that the term comprises T words, wherein T is from 1 to N;  
35 wherein, in said determining the header relevance value for the occurrence if the occurrence is in a header, the program instructions are further computer-executable to implement:  
determining a positional relevance value using N and X, wherein the determined positional relevance value is higher the closer the occurrence is to the beginning of the header;  
determining a percentage relevance value using T and N, wherein the percentage relevance  
40 value is the percentage of the header occupied by the term; and

combining the positional relevance value and the percentage relevance value to produce the header relevance value.

335. A method for providing context-sensitive help in a computer-based insurance claims processing system comprising a display, the method comprising:

initiating processing of an insurance claim on the computer-based insurance claims processing system, wherein said processing of the insurance claim on the computer-based insurance claims processing system comprises one or more steps, and wherein each step is displayable in a display page on the display;

initiating a first step in the processing of the insurance claim;

reading a page identifier for the display page for the first step from display information describing the display page for the first step;

locating a first help information entry for the first step in a help database using the page identifier for the display page, wherein the first help information entry for the first step includes a first unit of help information for the first step;

reading the first unit of help information for the first step from the first help information entry in the help database;

displaying the first unit of help information read from the first help information entry for the first step on the display; and

displaying the display page for the first step on the display.

336. The method of claim 335, further comprising:

locating a second help information entry for the first step in the help database using the page identifier for the display page, wherein the second help information entry for the first step includes a second unit of help information for the first step;

reading the second unit of help information for the first step from the second help information entry in the help database; and

displaying the second unit of help information read from the second help information entry for the first step on the display.

337. The method of claim 336, further comprising:

determining a first relevance value for the first unit of help information read from the first help information entry for the first step;

determining a second relevance value for the second unit of help information read from the second help information entry for the first step; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

338. The method of claim 335,

wherein the help database comprises an index table comprising a plurality of index table entries, wherein a first portion of the plurality of index table entries each comprise a page identifier and an object identifier;

wherein the help database further comprises one or more help information tables each comprising a plurality of help information entries, wherein each of the plurality of help information entries in each of the one or more help information tables comprises an object identifier and a unit of help information; and

wherein the index table entries in the index table are used to locate help information entries in the one or more help information tables by matching index table entry object identifiers to help information entry object identifiers.

339. The method of claim 338,

wherein said locating the first help information entry for the first step in the help database using the page identifier for the display page comprises:

locating in the index table a first index table entry comprising a page identifier that matches the page identifier for the display page, wherein the first index table entry comprises a first object identifier;

reading the first object identifier from the index table entry; and

locating in a first of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first step.

340. The method of claim 339,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim.

341. The method of claim 339,

wherein the one or more help information tables comprise a text table, wherein units of help information in the text table include text sections from one or more documents related to the processing of the insurance claim.

342. The method of claim 335,

wherein the first unit of help information read from the first help information entry for the display page is information relevant to performing the first step in processing of the insurance claim.

343. The method of claim 335,

wherein the first unit of help information read from the first help information entry for the display page is extracted from a guidebook comprising a plurality of terms used in insurance claims processing.

344. The method of claim 335, further comprising:

providing a search interface on the display, wherein the search interface is configured to accept user input of one or more terms to be searched for in the help database;

the user entering a first term to be searched for in the search interface;

initiating a search for the first term in the help database;

locating a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;

reading the first unit of help information for the first term from the first help information entry in the help database; and

displaying the first unit of help information read from the first help information entry for the first term on the display.

345. The method of claim 344, further comprising:

locating a second help information entry for the first term in the help database, wherein the second help information entry for the first term includes a second unit of help information for the first term;

reading the second unit of help information for the first term from the second help information entry in the help database; and

displaying the second unit of help information read from the second help information entry for the first term on the display.

346. The method of claim 345, further comprising:

determining a first relevance value for the first unit of help information read from the first help information entry for the first term;

determining a second relevance value for the second unit of help information read from the second help information entry for the first term; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

347. A method for providing context-sensitive help in a computer-based insurance claims processing system comprising a display, the method comprising:

initiating processing of an insurance claim on the computer-based insurance claims processing system, wherein said processing of the insurance claim on the computer-based insurance claims processing system comprises one or more steps, and wherein each step is displayable in a display page on the display;

initiating a first step in the processing of the insurance claim;

retrieving a page identifier for the display page for the first step from display information describing the display page for the first step;

locating a first page identifier entry for the page identifier in a first index table, wherein the first page identifier entry includes a first object identifier for locating help information entries in one or more help information tables;

reading the first object identifier from the first page identifier entry;  
locating a first help information entry for the first object identifier in a first help information table from  
the one or more help information tables, wherein the first help information entry for the first  
object identifier includes a first unit of help information for the first step;  
5 reading the first unit of help information for the first step from the first help information entry in the first  
help information table;  
displaying the first unit of help information read from the first help information entry for the first step on  
the display; and  
displaying the display page for the first step on the display.

10 348. The method of claim 347, further comprising:  
locating a second page identifier entry for the page identifier in the first index table, wherein the second  
page identifier entry includes a second object identifier for locating help information entries in  
the one or more help information tables;  
15 retrieving the second object identifier from the second page identifier entry;  
locating a second help information entry for the second object identifier in the first help information  
table, wherein the second help information entry for second first object identifier includes a  
second unit of help information for the first step;  
reading the second unit of help information for the first step from the second help information entry in  
20 the first help information table; and  
displaying the second unit of help information read from the second help information entry for the first  
step on the display.

349. The method of claim 348, further comprising:  
25 determining a first relevance value for the first unit of help information read from the first help  
information entry for the first step;  
determining a second relevance value for the second unit of help information read from the second help  
information entry for the first step; and  
wherein the first unit of help information and the second unit of help information are displayed in order  
30 of their relevance values.

350. The method of claim 348, further comprising:  
reading a first relevance value for the first unit of help information read from the first help information  
entry for the first step from the first page identifier entry in the first index table;  
35 reading a second relevance value for the second unit of help information read from the second help  
information entry for the first step from the second page identifier entry in the first index table;  
and  
wherein the first unit of help information and the second unit of help information are displayed on the  
display in order of their relevance values.

40 351. The method of claim 347,



wherein the first step includes one or more content items each associated with a content item code, and  
wherein the content items are displayable on the display page for the first step;

wherein the method further comprises:

locating a first content item code entry for the first content item code in the first index table,

5 wherein the first content item code entry includes a third object identifier for locating  
help information entries in the one or more help information tables;

retrieving the third object identifier from the first content item code entry;

locating a third help information entry for the third object identifier in the first help information  
table, wherein the third help information entry for the third object identifier includes a

10 third unit of help information for the first content item of the first step;

reading the third unit of help information for the first content item of the first step from the third  
help information entry in the first help information table; and

displaying the third unit of help information read from the third help information entry for the  
first content item of the first step on the display.

15

352. The method of claim 351, further comprising:

determining a first relevance value for the first unit of help information read from the first help  
information entry for the first step;

determining a third relevance value for the third unit of help information read from the third help  
information entry for the first content item of the first step; and

20

wherein the first unit of help information and the third unit of help information are displayed on the  
display in order of their relevance values.

353. The method of claim 351, further comprising:

25

reading a first relevance value for the first unit of help information read from the first help information  
entry for the first step from the first page identifier entry;

reading a third relevance value for the third unit of help information read from the third help information  
entry for the first content item of the first step from the third page identifier entry; and

wherein the first unit of help information and the third unit of help information are displayed on the  
display in order of their relevance values.

30

354. The method of claim 347,

wherein the first unit of help information read from the first help information entry for the display page is  
information relevant to performing the first step in processing of the insurance claim.

35

355. The method of claim 347,

wherein the first unit of help information read from the first help information entry for the display page is  
extracted from a guidebook comprising a plurality of terms used in insurance claims processing.

40

356. The method of claim 347,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim.

- 5     357.     The method of claim 347,  
          wherein the one or more help information tables comprise a text table, wherein units of help information  
          in the text table include text sections from one or more documents related to the processing of  
          the insurance claim.
- 10    358.     A method for providing context-sensitive help in a computer-based insurance claims processing system  
          comprising a display, the method comprising:  
          initiating processing of an insurance claim on the computer-based insurance claims processing system,  
          wherein said processing of the insurance claim on the computer-based insurance claims  
          processing system comprises one or more steps, and wherein each step is displayed in one or  
15           more display pages on the display;  
          initiating a first step in the processing of the insurance claim;  
          retrieving a page identifier for a display page for the first step from display information describing the  
          display page for the first step;  
          locating a plurality of page identifier entries for the page identifier in one or more index tables, wherein  
20           each of the plurality of page identifier entries includes an object identifier for locating object  
          identifier entries for the page identifier in one or more help information tables;  
          retrieving a plurality of object identifiers from the plurality of page identifier entries;  
          locating a first plurality of help information entries for the plurality of object identifiers in the one or  
          more help information tables, wherein each of the first plurality of help information entries  
25           includes a unit of help information for the display page for the first step;  
          reading a first plurality of units of help information for the display page for the first step from the first  
          plurality of help information entries;  
          displaying the first plurality of units of help information read from the first plurality of help information  
          entries for the display page for the first step on the display; and  
30           displaying the display page for the first step on the display.
359.     The method of claim 358, further comprising:  
          reading a first plurality of relevance values for the first plurality of units of help information from the  
          plurality of page identifier entries in the one or more index tables; and  
35           displaying the first plurality of units of help information on the display in order of the first plurality of  
          relevance values.
360.     The method of claim 358,  
          wherein the first step includes a plurality of content items;  
40           wherein the plurality of content items are displayed on the display page for the first step;

wherein one or more of the plurality of content items of the first step are each associated with a content item code; and

wherein the method further comprises:

retrieving one or more content item codes for the one or more of the plurality of content items;

5        locating one or more content item code entries for the one or more content item codes in the one or more index tables, wherein each of the one or more content item code entries includes an object identifier for locating help information entries in the one or more help information tables;

10       retrieving one or more object identifiers from the one or more content item code entries for the one or more content item codes;

      locating a second plurality of help information entries for the one or more object identifiers in the one or more help information tables, wherein the second plurality of help information entries for the one or more object identifiers each include a unit of help information;

15       reading a second plurality of units of help information for the one or more of the plurality of content items from the second plurality of help information entries in the one or more help information tables; and

      displaying the second plurality of units of help information read from the second plurality of help information entries on the display.

20

361.    The method of claim 360, further comprising:

      reading a first plurality of relevance values for the first plurality of units of help information from the plurality of page identifier entries in the one or more index tables;

25       reading one or more relevance values for the second plurality of units of help information from the one or more content item code entries in the one or more index tables; and

      displaying the first plurality of units of help information and the second plurality of units of help information on the display in order of the relevance values.

362.    The method of claim 360, further comprising:

30       determining a total number of the page identifier and content item codes that occur in the each of help information in each of the located first plurality of help information entries and second plurality of help information entries; and

      displaying the first plurality of units of help information and the second plurality of units of help information on the display in order of the determined total number of the page identifier and content item codes that occur in each unit of help information.

35

363.    A method for searching for terms in a computer-based insurance claims processing system comprising a display, the method comprising:

40       initiating processing of an insurance claim on the computer-based insurance claims processing system, wherein said processing of the insurance claim on the computer-based insurance claims

processing system comprises one or more steps, and wherein each step is displayable in a display page on the display;

initiating a first step in the processing of the insurance claim;

displaying the display page for the first step on the display;

5 providing a search interface on the display, wherein the search interface is configured to accept user input of one or more terms to be searched for in a help database;

the user entering a first term to be searched for in the search interface;

initiating a search for the first term in the help database;

10 locating a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;

reading the first unit of help information for the first term from the first help information entry in the help database; and

displaying the first unit of help information read from the first help information entry for the first term on the display.

15

364. The method of claim 363, further comprising:

locating a second help information entry for the first term in the help database, wherein the second help information entry for the first term includes a second unit of help information for the first term;

20 reading the second unit of help information for the first term from the second help information entry in the help database; and

displaying the second unit of help information read from the second help information entry for the first term on the display.

365. The method of claim 363, further comprising:

25 determining a first relevance value for the first unit of help information read from the first help information entry for the first term;

determining a second relevance value for the second unit of help information read from the second help information entry for the first term; and

30 wherein the first unit of help information and the second unit of help information are displayed on the display in order of their relevance values.

366. The method of claim 363,

wherein said locating the first help information entry for the first term in the help database comprises:

35 locating a Soundex equivalent of the first term in the help database.

367. The method of claim 363,

wherein the help database comprises an index table comprising one or more index table entries each comprising a term and an object identifier;

40 wherein the help database further comprises one or more help information tables each comprising a plurality of help information entries, wherein each of the plurality of help information entries in

each of the one or more help information tables comprises an object identifier and a unit of help information; and

wherein the one or more index table entries in the index table are useable to locate help information entries in the one or more help information tables by matching index table entry object identifiers to help information entry object identifiers.

368. The method of claim 367,

wherein said locating the first help information entry for the first term in the help database comprises:

locating in the index table a first index table entry comprising a term that matches the first term entered by the user, wherein the first index table entry comprises a first object identifier;

reading the first object identifier from the index table entry; and

locating in a first of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first term.

369. The method of claim 367,

wherein the one or more index table entries each further comprises a Soundex equivalent of the term comprised in the index table entry;

wherein said locating the first help information entry for the first term in the help database comprises:

converting the first term entered by the user to a first Soundex equivalent of the first term;

locating in the index table a first index table entry comprising a Soundex equivalent that matches the first Soundex equivalent of the first term entered by the user, wherein the first index table entry comprises a first object identifier;

reading the first object identifier from the index table entry; and

locating in a first of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first term.

370. The method of claim 367,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim.

371. The method of claim 367,

wherein the one or more help information tables comprise a text table, wherein units of help information in the text table include text sections from one or more documents related to the processing of the insurance claim.

5     372.     The method of claim 363,  
          wherein the first unit of help information read from the first help information entry for the display page is  
          information relevant to performing the first step in processing of the insurance claim.

10     373.     The method of claim 363,  
          wherein the first unit of help information read from the first help information entry for the display page is  
          extracted from a guidebook comprising a plurality of terms used in insurance claims processing.

15     374.     A method for searching for terms in a computer-based insurance claims processing system comprising a  
display, the method comprising:  
          initiating processing of an insurance claim on the computer-based insurance claims processing system,  
          wherein said processing of the insurance claim on the computer-based insurance claims  
          processing system comprises one or more steps, and wherein each step is displayable in a  
          display page on the display;  
          initiating a first step in the processing of the insurance claim;  
20     displaying the display page for the first step on the display;  
          providing a search interface on the display, wherein the search interface is configured to accept user  
          input of one or more terms to be searched for in a help database;  
          the user entering a plurality of terms to be searched for in the search interface;  
          initiating a search for the plurality of terms in the help database;  
25     locating one or more help information entries for the plurality of terms in the help database, wherein the  
          one or more help information entries located for the plurality of terms each include a unit of  
          help information for at least one of the plurality of terms;  
          reading one or more units of help information for the plurality of terms from the located one or more help  
          information entries in the help database; and  
30     displaying the one or more units of help information read from the located one or more help information  
          entries for the plurality of terms on the display.

35     375.     The method of claim 374, further comprising:  
          determining a relevance value for each of the one or more units of help information read from the located  
          one or more help information entries for the plurality of terms; and  
          displaying the one or more units of help information in order of the determined relevance values.

40     376.     The method of claim 374, further comprising:  
          determining a number of the plurality of terms that occur in the unit of help information in each of the  
          located one or more help information entries; and

displaying the one or more units of help information in order of the determined number of the plurality of terms that occur in the units of help information.

377. An insurance claims processing system comprising:

5 a computer system including a memory medium;

a display device coupled to the computer system;

one or more user input devices coupled to the computer system;

10 a help database for the insurance claims processing system stored in the memory medium, wherein the help database comprises one or more documents related to the processing of insurance claims in the insurance claims processing system and one or more tables configured for use in locating occurrences of terms in the help database; and

an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:

15 initiate processing of an insurance claim on the insurance claims processing system, wherein said processing of the insurance claim comprises one or more steps, and wherein each step is displayable in a display page on the display device, and wherein each step is associated with a page identifier;

initiate a first step in the processing of the insurance claim;

20 locate a first help information entry for the first step in the help database using a page identifier for the first step, wherein the first help information entry for the first step includes a first unit of help information for the first step;

read the first unit of help information for the first step from the first help information entry in the help database;

25 display the first unit of help information read from the first help information entry for the first step on the display device; and

display the display page for the first step on the display device.

378. The system of claim 377, wherein the insurance claims processing program is further executable to:

30 locate a second help information entry for the first step in the help database using the page identifier for the display page, wherein the second help information entry for the first step includes a second unit of help information for the first step;

read the second unit of help information for the first step from the second help information entry in the help database; and

35 display the second unit of help information read from the second help information entry for the first step on the display screen.

379. The system of claim 378, wherein the insurance claims processing program is further executable to:

determine a first relevance value for the first unit of help information read from the first help information entry for the first step;

40 determine a second relevance value for the second unit of help information read from the second help information entry for the first step; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

380. The system of claim 377,

wherein the help database comprises an index table comprising a plurality of index table entries, wherein a first portion of the plurality of index table entries each comprise a page identifier and an object identifier;

wherein the help database further comprises one or more help information tables each comprising a plurality of help information entries, wherein each of the plurality of help information entries in each of the one or more help information tables comprises an object identifier and a unit of help information; and

wherein the index table entries in the index table are used to locate help information entries in the one or more help information tables by matching index table entry object identifiers to help information entry object identifiers.

381. The system of claim 380,

wherein, in said locating the first help information entry for the first step in the help database using the page identifier for the display page, the insurance claims processing program is further executable to:

locate in the index table a first index table entry comprising a page identifier that matches the page identifier for the display page, wherein the first index table entry comprises a first object identifier;

read the first object identifier from the index table entry; and

locate in a first of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first step.

382. The system of claim 381,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim.

383. The system of claim 381,

wherein the one or more help information tables comprise a text table, wherein units of help information in the text table include text sections from one or more documents related to the processing of the insurance claim.

384. The system of claim 377,



wherein the first unit of help information read from the first help information entry for the display page is information relevant to performing the first step in processing of the insurance claim.

385. The system of claim 377, wherein the insurance claims processing program is further executable to:  
5 provide a search interface on the display device, wherein the search interface is configured to accept user input of one or more terms to be searched for in the help database from one or more of the user input devices;  
accept a first term to be searched for in the search interface, wherein the first term is entered by a user of the insurance claims processing system using one or more of the user input devices;  
10 initiate a search for the first term in the help database;  
locate a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;  
read the first unit of help information for the first term from the first help information entry in the help database; and  
15 display the first unit of help information read from the first help information entry for the first term on the display device.

386. The system of claim 385, wherein the insurance claims processing program is further executable to:  
locate a second help information entry for the first term in the help database, wherein the second help  
20 information entry for the first term includes a second unit of help information for the first term;  
read the second unit of help information for the first term from the second help information entry in the help database; and  
display the second unit of help information read from the second help information entry for the first term on the display.

387. The system of claim 386, wherein the insurance claims processing program is further executable to:  
determine a first relevance value for the first unit of help information read from the first help information entry for the first term;  
determine a second relevance value for the second unit of help information read from the second help  
30 information entry for the first term; and  
wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

388. An insurance claims processing system comprising:  
35 a computer system including a memory medium;  
a display device coupled to the computer system;  
a help database for the insurance claims processing system stored in the memory medium, wherein the help database comprises:  
one or more documents related to the processing of insurance claims in the insurance claims  
40 processing system;

one or more help information tables comprising help information entries configured for use in locating occurrences of terms in the help database; and

one or more index tables comprising index table entries configured for use in locating help information entries in the one or more help information tables; and

5 an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:

initiate processing of an insurance claim on the computer-based insurance claims processing system, wherein said processing of the insurance claim in the computer-based insurance claims processing system comprises one or more steps, and wherein each

10 step is displayable in a display page on the display device;

initiate a first step in the processing of the insurance claim;

retrieve a page identifier for a display page for the first step from display page information for the first step;

15 locate a first page identifier entry for the page identifier in a first index table, wherein the first page identifier entry includes a first object identifier for locating help information entries in the one or more help information tables;

read the first object identifier from the first page identifier entry;

locate a first help information entry for the first object identifier in a first help information table from the one or more help information tables, wherein the first help information entry for the first object identifier includes a first unit of help information for the first step;

20 read the first unit of help information for the first step from the first help information entry in the first help information table;

display the first unit of help information read from the first help information entry for the first step on the display device; and

25 display the display page for the first step on the display device.

389. The system of claim 388, wherein the insurance claims processing program is further executable to:

locate a second page identifier entry for the page identifier in the first index table, wherein the second page identifier entry includes a second object identifier for locating help information entries in

30 the one or more help information tables;

retrieve the second object identifier from the second page identifier entry;

locate a second help information entry for the second object identifier in the first help information table, wherein the second help information entry for second first object identifier includes a second unit of help information for the first step;

35 read the second unit of help information for the first step from the second help information entry in the first help information table; and

display the second unit of help information read from the second help information entry for the first step on the display.

40 390. The system of claim 389, wherein the insurance claims processing program is further executable to:

determine a first relevance value for the first unit of help information read from the first help information entry for the first step;

determine a second relevance value for the second unit of help information read from the second help information entry for the first step; and

5 wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

391. The system of claim 389, wherein the insurance claims processing program is further executable to:

10 read a first relevance value for the first unit of help information read from the first help information entry for the first step from the first page identifier entry in the first index table;

read a second relevance value for the second unit of help information read from the second help information entry for the first step from the second page identifier entry in the first index table; and

15 wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

392. The system of claim 388,

wherein the first step includes one or more content items each associated with a content item code, and wherein the content items are displayable on the display page for the first step;

20 wherein the insurance claims processing program is further executable to:

locate a first content item code entry for the first content item code in the first index table, wherein the first content item code entry includes a third object identifier for locating help information entries in the one or more help information tables;

retrieve the third object identifier from the first content item code entry;

25 locate a third help information entry for the third object identifier in the first help information table, wherein the third help information entry for the third object identifier includes a third unit of help information for the first content item of the first step;

read the third unit of help information for the first content item of the first step from the third help information entry in the first help information table; and

30 display the third unit of help information read from the third help information entry for the first content item of the first step on the display.

393. The system of claim 392, wherein the insurance claims processing program is further executable to:

35 determine a first relevance value for the first unit of help information read from the first help information entry for the first step;

determine a third relevance value for the third unit of help information read from the third help information entry for the first content item of the first step; and

wherein the first unit of help information and the third unit of help information are displayed in order of their relevance values.

40

394. The system of claim 392, wherein the insurance claims processing program is further executable to:

read a first relevance value for the first unit of help information read from the first help information entry  
for the first step from the first page identifier entry;  
read a third relevance value for the third unit of help information read from the third help information  
entry for the first content item of the first step from the third page identifier entry; and  
5 wherein the first unit of help information and the third unit of help information are displayed in order of  
their relevance values.

395. The system of claim 388,  
wherein the first unit of help information read from the first help information entry for the display page is  
10 information relevant to performing the first step in processing of the insurance claim.

396. The system of claim 388,  
wherein the one or more help information tables comprise a header table, wherein units of help  
information in the header table include headers from one or more documents related to the  
15 processing of the insurance claim.

397. The system of claim 388,  
wherein the one or more help information tables comprise a text table, wherein units of help information  
in the text table include text sections from one or more documents related to the processing of  
20 the insurance claim.

398. An insurance claims processing system comprising:  
a computer system including a memory medium;  
a display device coupled to the computer system;  
25 one or more user input devices coupled to the computer system;  
a help database for the insurance claims processing system stored in the memory medium, wherein the  
help database comprises:  
one or more documents related to the processing of insurance claims in the insurance claims  
processing system;  
30 one or more help information tables comprising help information entries configured for use in  
locating occurrences of terms in the help database; and  
one or more index tables comprising index table entries configured for use in locating help  
information entries in the one or more help information tables; and  
an insurance claims processing program stored in the memory medium and executable within the  
35 computer system, wherein the insurance claims processing program is executable to:  
initiate processing of an insurance claim on the computer-based insurance claims processing  
system, wherein said processing of the insurance claim in the computer-based  
insurance claims processing system comprises one or more steps, and wherein each  
step is displayed in one or more display pages on the display device;  
40 initiate a first step in the processing of the insurance claim;

retrieve a page identifier for a display page for the first step from display page information for the first step;

locate a plurality of page identifier entries for the page identifier in one or more index tables, wherein each of the plurality of page identifier entries includes an object identifier for locating object identifier entries for the page identifier in one or more help information tables;

retrieve a plurality of object identifiers from the plurality of page identifier entries;

locate a first plurality of help information entries for the plurality of object identifiers in the one or more help information tables, wherein each of the first plurality of help information entries includes a unit of help information for the display page for the first step;

read a first plurality of units of help information for the display page for the first step from the first plurality of help information entries;

display the first plurality of units of help information read from the first plurality of help information entries for the display page for the first step on the display device; and

display the display page for the first step on the display device.

399. The system of claim 398, wherein the insurance claims processing program is further executable to:

read a first plurality of relevance values for the first plurality of units of help information from the plurality of page identifier entries in the one or more index tables; and

display the first plurality of units of help information on the display in order of the first plurality of relevance values.

400. The system of claim 398,

wherein the first step includes a plurality of content items;

wherein the plurality of content items are displayed on the display page for the first step;

wherein one or more of the plurality of content items of the first step are each associated with a content item code; and

wherein the insurance claims processing program is further executable to:

retrieve one or more content item codes for the one or more of the plurality of content items;

locate one or more content item code entries for the one or more content item codes in the one or more index tables, wherein each of the one or more content item code entries includes an object identifier for locating help information entries in the one or more help information tables;

retrieve one or more object identifiers from the one or more content item code entries for the one or more content item codes;

locate a second plurality of help information entries for the one or more object identifiers in the one or more help information tables, wherein the second plurality of help information entries for the one or more object identifiers each include a unit of help information;

read a second plurality of units of help information for the one or more of the plurality of content items from the second plurality of help information entries in the one or more help information tables; and

display the second plurality of units of help information read from the second plurality of help information entries on the display device.

401. The system of claim 400, wherein the insurance claims processing program is further executable to:  
5 read a first plurality of relevance values for the first plurality of units of help information from the plurality of page identifier entries in the one or more index tables;  
read one or more relevance values for the second plurality of units of help information from the one or more content item code entries in the one or more index tables; and  
display the first plurality of units of help information and the second plurality of units of help  
10 information on the display device in order of the relevance values.

402. The system of claim 400, wherein the insurance claims processing program is further executable to:  
determine a total number of the page identifier and content item codes that occur in the each of help  
information in each of the located first plurality of help information entries and second plurality of help  
15 information entries; and  
display the first plurality of units of help information and the second plurality of units of help  
information on the display in order of the determined total number of the page identifier and content item codes  
that occur in each unit of help information.

20 403. An insurance claims processing system comprising:  
a computer system including a memory medium;  
a display device coupled to the computer system;  
one or more user input devices coupled to the computer system;  
a help database for the insurance claims processing system stored in the memory medium, wherein the  
25 help database comprises one or more documents related to the processing of insurance claims in the insurance claims processing system; and  
an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:  
initiate processing of an insurance claim on the computer-based insurance claims processing  
30 system, wherein said processing of the insurance claim in the computer-based insurance claims processing system comprises one or more steps, and wherein each step is displayable in a display page on the display device;  
initiate a first step in the processing of the insurance claim;  
display the display page for the first step on the display device;  
35 provide a search interface on the display device, wherein the search interface is configured to receive user input of one or more terms to be searched for in the help database;  
receive a first term to be searched for, wherein the first term is entered by a user in the search interface using the one or more user input devices;  
initiate a search for the first term in the help database;

locate a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;

read the first unit of help information for the first term from the first help information entry in the help database; and

display the first unit of help information read from the first help information entry for the first term on the display device.

404. The system of claim 403, wherein the insurance claims processing program is further executable to:

locate a second help information entry for the first term in the help database, wherein the second help information entry for the first term includes a second unit of help information for the first term;

read the second unit of help information for the first term from the second help information entry in the help database; and

display the second unit of help information read from the second help information entry for the first term on the display device.

405. The system of claim 404, wherein the insurance claims processing program is further executable to:

determine a first relevance value for the first unit of help information read from the first help information entry for the first term;

determine a second relevance value for the second unit of help information read from the second help information entry for the first term; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

406. The system of claim 403,

wherein said locating the first help information entry for the first term in the help database comprises:

locating a Soundex equivalent of the first term in the help database.

407. The system of claim 403,

wherein the help database further comprises an index table comprising one or more index table entries each comprising a term and an object identifier;

wherein the help database further comprises one or more help information tables each comprising a plurality of help information entries, wherein each of the plurality of help information entries in each of the one or more help information tables comprises an object identifier and a unit of help information; and

wherein the one or more index table entries in the index table are useable to locate help information entries in the one or more help information tables by matching index table entry object identifiers to help information entry object identifiers.

408. The system of claim 407,

wherein, in said locating the first help information entry for the first term in the help database, the insurance claims processing program is further executable to:

locate in the index table a first index table entry comprising a term that matches the first term entered by the user, wherein the first index table entry comprises a first object identifier;

read the first object identifier from the index table entry; and

locate in a first help information table of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first term.

409. The system of claim 407,

wherein the one or more index table entries each further comprises a Soundex equivalent of the term comprised in the index table entry;

wherein, in said locating the first help information entry for the first term in the help database, the insurance claims processing program is further executable to:

convert the first term entered by the user to a first Soundex equivalent of the first term;

locate in the index table a first index table entry comprising a Soundex equivalent that matches the first Soundex equivalent of the first term entered by the user, wherein the first index table entry comprises a first object identifier;

read the first object identifier from the index table entry; and

locate in a first help information table of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first term.

410. The system of claim 407,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim.

411. The system of claim 407,

wherein the one or more help information tables comprise a text table, wherein units of help information in the text table include text sections from one or more documents related to the processing of the insurance claim.

412. An insurance claims processing system comprising:

a computer system including a memory medium;

a display device coupled to the computer system;



one or more user input devices coupled to the computer system;  
a help database for the insurance claims processing system stored in the memory medium, wherein the help database comprises one or more documents related to the processing of insurance claims in the insurance claims processing system; and  
5 an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:  
initiate processing of an insurance claim on the computer-based insurance claims processing system, wherein said processing of the insurance claim in the computer-based insurance claims processing system comprises one or more steps, and wherein each  
10 step is displayable in a display page on the display device;  
initiate a first step in the processing of the insurance claim;  
display the display page for the first step on the display device;  
provide a search interface on the display device, wherein the search interface is configured to receive user input of one or more terms to be searched for in the help database;  
15 receive a plurality of terms to be searched for, wherein the plurality of terms are entered by the user in the search interface using one or more of the one or more user interface devices;  
initiate a search for the plurality of terms in the help database;  
locate one or more help information entries for the plurality of terms in the help database, wherein the one or more help information entries for the plurality of terms each include  
20 a unit of help information for at least one of the plurality of terms;  
read one or more units of help information for the plurality of terms from the located one or more help information entries in the help database; and  
display the one or more units of help information read from the located one or more help information entries for the plurality of terms on the display.

25 413. The system of claim 412, wherein the insurance claims processing program is further executable to:  
determine a relevance value for each of the one or more units of help information read from the located one or more help information entries for the plurality of terms; and  
display the one or more units of help information in order of the determined relevance values.

30 414. The system of claim 412, wherein the insurance claims processing program is further executable to:  
determine a number of the plurality of terms that occur in the unit of help information in each of the located one or more help information entries; and  
display the one or more units of help information in order of the determined number of the plurality of  
35 terms that occur in the units of help information.

415. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:  
initiating processing of an insurance claim on a computer-based insurance claims processing system  
40 comprising a display, wherein said processing of the insurance claim on the computer-based

insurance claims processing system comprises one or more steps, and wherein each step is  
displayable in a display page on the display;  
initiating a first step in the processing of the insurance claim;  
reading a page identifier for the display page for the first step from display information describing the  
5 display page for the first step;  
locating a first help information entry for the first step in a help database using the page identifier for the  
display page, wherein the first help information entry for the first step includes a first unit of  
help information for the first step;  
reading the first unit of help information for the first step from the first help information entry in the help  
10 database;  
displaying the first unit of help information read from the first help information entry for the first step on  
the display; and  
displaying the display page for the first step on the display.

15 416. The carrier medium of claim 415, wherein the program instructions are further computer-executable to implement:

locating a second help information entry for the first step in the help database using the page identifier  
for the display page, wherein the second help information entry for the first step includes a  
second unit of help information for the first step;  
20 reading the second unit of help information for the first step from the second help information entry in  
the help database;  
determining a first relevance value for the first unit of help information read from the first help  
information entry for the first step;  
determining a second relevance value for the second unit of help information read from the second help  
25 information entry for the first step; and  
displaying the second unit of help information read from the second help information entry for the first  
step on the display;  
wherein the first unit of help information and the second unit of help information are displayed in order  
of their relevance values.

30 417. The carrier medium of claim 415,  
wherein the help database comprises an index table comprising a plurality of index table entries, wherein  
a first portion of the plurality of index table entries each comprise a page identifier and an object  
identifier;

35 wherein the help database further comprises one or more help information tables each comprising a  
plurality of help information entries, wherein each of the plurality of help information entries in  
each of the one or more help information tables comprises an object identifier and a unit of help  
information;

40 wherein the index table entries in the index table are used to locate help information entries in the one or  
more help information tables by matching index table entry object identifiers to help  
information entry object identifiers; and

wherein, in said locating the first help information entry for the first step in the help database using the page identifier for the display page, the program instructions are further computer-executable to implement:

locating in the index table a first index table entry comprising a page identifier that matches the page identifier for the display page, wherein the first index table entry comprises a first object identifier;

reading the first object identifier from the index table entry; and

locating in a first of the one or more help information tables the first help information entry for the first object identifier, wherein an object identifier in the first help information entry matches the first object identifier from the first index table entry, and wherein the first help information entry further comprises the first unit of help information for the first step.

418. The carrier medium of claim 417,

wherein the one or more help information tables comprise a header table, wherein units of help information in the header table include headers from one or more documents related to the processing of the insurance claim; and

wherein the one or more help information tables further comprise a text table, wherein units of help information in the text table include text sections from one or more documents related to the processing of the insurance claim.

419. The carrier medium of claim 415,

wherein the first unit of help information read from the first help information entry for the display page is information relevant to performing the first step in processing of the insurance claim.

420. The carrier medium of claim 415, wherein the program instructions are further computer-executable to implement:

providing a search interface on the display, wherein the search interface is configured to accept user input of one or more terms to be searched for in the help database;

the user entering a first term to be searched for in the search interface;

initiating a search for the first term in the help database;

locating a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;

reading the first unit of help information for the first term from the first help information entry in the help database; and

displaying the first unit of help information read from the first help information entry for the first term on the display.

421. The carrier medium of claim 420, wherein the program instructions are further computer-executable to implement:

locating a second help information entry for the first term in the help database, wherein the second help information entry for the first term includes a second unit of help information for the first term; reading the second unit of help information for the first term from the second help information entry in the help database;

5 determining a first relevance value for the first unit of help information read from the first help information entry for the first term;

determining a second relevance value for the second unit of help information read from the second help information entry for the first term; and

10 displaying the second unit of help information read from the second help information entry for the first term on the display;

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

422. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

15 initiating processing of an insurance claim on a computer-based insurance claims processing system comprising a display, wherein said processing of the insurance claim on the computer-based insurance claims processing system comprises one or more steps, and wherein each step is displayable in a display page on the display;

20 initiating a first step in the processing of the insurance claim;

retrieving a page identifier for the display page for the first step from display information describing the display page for the first step;

25 locating a first page identifier entry for the page identifier in a first index table, wherein the first page identifier entry includes a first object identifier for locating help information entries in one or more help information tables;

reading the first object identifier from the first page identifier entry;

30 locating a first help information entry for the first object identifier in a first help information table from the one or more help information tables, wherein the first help information entry for the first object identifier includes a first unit of help information for the first step;

reading the first unit of help information for the first step from the first help information entry in the first help information table;

displaying the first unit of help information read from the first help information entry for the first step on the display; and

displaying the display page for the first step on the display.

423. The carrier medium of claim 422, wherein the program instructions are further computer-executable to implement:

40 locating a second page identifier entry for the page identifier in the first index table, wherein the second page identifier entry includes a second object identifier for locating help information entries in the one or more help information tables;

retrieving the second object identifier from the second page identifier entry;

locating a second help information entry for the second object identifier in the first help information table, wherein the second help information entry for second first object identifier includes a second unit of help information for the first step;

reading the second unit of help information for the first step from the second help information entry in the first help information table; and

displaying the second unit of help information read from the second help information entry for the first step on the display.

424. The carrier medium of claim 423, wherein the program instructions are further computer-executable to implement:

determining a first relevance value for the first unit of help information read from the first help information entry for the first step;

determining a second relevance value for the second unit of help information read from the second help information entry for the first step; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

425. The carrier medium of claim 422,

wherein the first step includes one or more content items each associated with a content item code, and

wherein the content items are displayable on the display page for the first step;

wherein the program instructions are further computer-executable to implement:

locating a first content item code entry for the first content item code in the first index table, wherein the first content item code entry includes a third object identifier for locating help information entries in the one or more help information tables;

retrieving the third object identifier from the first content item code entry;

locating a third help information entry for the third object identifier in the first help information table, wherein the third help information entry for the third object identifier includes a third unit of help information for the first content item of the first step;

reading the third unit of help information for the first content item of the first step from the third help information entry in the first help information table; and

displaying the third unit of help information read from the third help information entry for the first content item of the first step on the display.

426. The carrier medium of claim 425, wherein the program instructions are further computer-executable to implement:

determining a first relevance value for the first unit of help information read from the first help information entry for the first step;

determining a third relevance value for the third unit of help information read from the third help information entry for the first content item of the first step; and

wherein the first unit of help information and the third unit of help information are displayed in order of their relevance values.

427. The carrier medium of claim 422,  
wherein the first unit of help information read from the first help information entry for the display page is  
information relevant to performing the first step in processing of the insurance claim.

5

428. The carrier medium of claim 422,  
wherein the one or more help information tables comprise a header table, wherein units of help  
information in the header table include headers from one or more documents related to the  
processing of the insurance claim; and

10

wherein the one or more help information tables further comprise a text table, wherein units of help  
information in the text table include text sections from one or more documents related to the  
processing of the insurance claim.

429. A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:

15

initiating processing of an insurance claim on a computer-based insurance claims processing system  
comprising a display, wherein said processing of the insurance claim on the computer-based  
insurance claims processing system comprises one or more steps, and wherein each step is  
displayed in one or more display pages on the display;

20

initiating a first step in the processing of the insurance claim;  
retrieving a page identifier for a display page for the first step from display information describing the  
display page for the first step;

locating a plurality of page identifier entries for the page identifier in one or more index tables, wherein  
each of the plurality of page identifier entries includes an object identifier for locating object  
identifier entries for the page identifier in one or more help information tables;

25

retrieving a plurality of object identifiers from the plurality of page identifier entries;  
locating a first plurality of help information entries for the plurality of object identifiers in the one or  
more help information tables, wherein each of the first plurality of help information entries  
includes a unit of help information for the display page for the first step;

30

reading a first plurality of units of help information for the display page for the first step from the first  
plurality of help information entries;

displaying the first plurality of units of help information read from the first plurality of help information  
entries for the display page for the first step on the display; and

displaying the display page for the first step on the display.

35

430. The carrier medium of claim 429, wherein the program instructions are further computer-executable to  
implement:

reading a first plurality of relevance values for the first plurality of units of help information from the  
plurality of page identifier entries in the one or more index tables; and

40

displaying the first plurality of units of help information on the display in order of the first plurality of  
relevance values.

431. The carrier medium of claim 429,  
wherein the first step includes a plurality of content items;  
wherein the plurality of content items are displayed on the display page for the first step;  
5 wherein one or more of the plurality of content items of the first step are each associated with a content  
item code; and  
wherein the program instructions are further computer-executable to implement:  
retrieving one or more content item codes for the one or more of the plurality of content items;  
locating one or more content item code entries for the one or more content item codes in the one  
10 or more index tables, wherein each of the one or more content item code entries  
includes an object identifier for locating help information entries in the one or more  
help information tables;  
retrieving one or more object identifiers from the one or more content item code entries for the  
one or more content item codes;  
15 locating a second plurality of help information entries for the one or more object identifiers in  
the one or more help information tables, wherein the second plurality of help  
information entries for the one or more object identifiers each include a unit of help  
information;  
reading a second plurality of units of help information for the one or more of the plurality of  
20 content items from the second plurality of help information entries in the one or more  
help information tables; and  
displaying the second plurality of units of help information read from the second plurality of  
help information entries on the display.

25 432. The carrier medium of claim 431, wherein the program instructions are further computer-executable to  
implement:  
reading a first plurality of relevance values for the first plurality of units of help information from the  
plurality of page identifier entries in the one or more index tables;  
reading one or more relevance values for the second plurality of units of help information from the one or  
30 more content item code entries in the one or more index tables; and  
displaying the first plurality of units of help information and the second plurality of units of help  
information on the display in order of the relevance values.

433. The carrier medium of claim 431, wherein the program instructions are further computer-executable to  
35 implement:  
determining a total number of the page identifier and content item codes that occur in the each of help  
information in each of the located first plurality of help information entries and second plurality of help  
information entries; and  
displaying the first plurality of units of help information and the second plurality of units of help  
40 information on the display in order of the determined total number of the page identifier and content item codes  
that occur in each unit of help information.

434. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

initiating processing of an insurance claim on a computer-based insurance claims processing system comprising a display, wherein said processing of the insurance claim on the computer-based insurance claims processing system comprises one or more steps, and wherein each step is displayable in a display page on the display;

initiating a first step in the processing of the insurance claim;

displaying the display page for the first step on the display;

providing a search interface on the display, wherein the search interface is configured to accept user input of one or more terms to be searched for in a help database;

the user entering a first term to be searched for in the search interface;

initiating a search for the first term in the help database;

locating a first help information entry for the first term in the help database, wherein the first help information entry for the first term includes a first unit of help information for the first term;

reading the first unit of help information for the first term from the first help information entry in the help database; and

displaying the first unit of help information read from the first help information entry for the first term on the display.

435. The carrier medium of claim 434, wherein the program instructions are further computer-executable to implement:

locating a second help information entry for the first term in the help database, wherein the second help information entry for the first term includes a second unit of help information for the first term;

reading the second unit of help information for the first term from the second help information entry in the help database; and

displaying the second unit of help information read from the second help information entry for the first term on the display.

436. The carrier medium of claim 435, wherein the program instructions are further computer-executable to implement:

determining a first relevance value for the first unit of help information read from the first help information entry for the first term;

determining a second relevance value for the second unit of help information read from the second help information entry for the first term; and

wherein the first unit of help information and the second unit of help information are displayed in order of their relevance values.

437. The carrier medium of claim 434,

wherein, in said locating the first help information entry for the first term in the help database, the program instructions are further computer-executable to implement:



locating a Soundex equivalent of the first term in the help database.

438. The carrier medium of claim 434,  
wherein the help database comprises an index table comprising one or more index table entries each  
5 comprising a term and an object identifier;  
wherein the help database further comprises one or more help information tables each comprising a  
plurality of help information entries, wherein each of the plurality of help information entries in  
each of the one or more help information tables comprises an object identifier and a unit of help  
information; and  
10 wherein the one or more index table entries in the index table are useable to locate help information  
entries in the one or more help information tables by matching index table entry object  
identifiers to help information entry object identifiers.

439. The carrier medium of claim 438,  
15 wherein, in said locating the first help information entry for the first term in the help database, the  
program instructions are further computer-executable to implement:  
locating in the index table a first index table entry comprising a term that matches the first term  
entered by the user, wherein the first index table entry comprises a first object  
identifier;  
20 reading the first object identifier from the index table entry; and  
locating in a first of the one or more help information tables the first help information entry for  
the first object identifier, wherein an object identifier in the first help information entry  
matches the first object identifier from the first index table entry, and wherein the first  
help information entry further comprises the first unit of help information for the first  
25 term.

440. The carrier medium of claim 438,  
wherein the one or more index table entries each further comprises a Soundex equivalent of the term  
comprised in the index table entry;  
30 wherein, in said locating the first help information entry for the first term in the help database, the  
program instructions are further computer-executable to implement:  
converting the first term entered by the user to a first Soundex equivalent of the first term;  
locating in the index table a first index table entry comprising a Soundex equivalent that  
matches the first Soundex equivalent of the first term entered by the user, wherein the  
35 first index table entry comprises a first object identifier;  
reading the first object identifier from the index table entry; and  
locating in a first of the one or more help information tables the first help information entry for  
the first object identifier, wherein an object identifier in the first help information entry  
matches the first object identifier from the first index table entry, and wherein the first  
40 help information entry further comprises the first unit of help information for the first  
term.

441. The carrier medium of claim 438,  
wherein the one or more help information tables comprise a header table, wherein units of help  
information in the header table include headers from one or more documents related to the  
5 processing of the insurance claim; and  
wherein the one or more help information tables further comprise a text table, wherein units of help  
information in the text table include text sections from one or more documents related to the  
processing of the insurance claim.

10 442. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

initiating processing of an insurance claim on a computer-based insurance claims processing system  
comprising a display, wherein said processing of the insurance claim on the computer-based  
insurance claims processing system comprises one or more steps, and wherein each step is  
15 displayable in a display page on the display;

initiating a first step in the processing of the insurance claim;

displaying the display page for the first step on the display;

providing a search interface on the display, wherein the search interface is configured to accept user  
input of one or more terms to be searched for in a help database;

20 the user entering a plurality of terms to be searched for in the search interface;

initiating a search for the plurality of terms in the help database;

locating one or more help information entries for the plurality of terms in the help database, wherein the  
one or more help information entries for the plurality of terms each include a unit of help  
information for at least one of the plurality of terms;

25 reading one or more units of help information for the plurality of terms from the located one or more help  
information entries in the help database; and

determining a relevance value for each of the one or more units of help information read from the located  
one or more help information entries for the plurality of terms; and

30 displaying the one or more units of help information read from the located one or more help information  
entries for the plurality of terms on the display, wherein the one or more units of help  
information are displayed in order of the determined relevance values.

443. The carrier medium of claim 442, wherein the program instructions are further computer-executable to  
implement:

35 determining a relevance value for each of the one or more units of help information read from the located  
one or more help information entries for the plurality of terms; and

displaying the one or more units of help information in order of the determined relevance values.

444. The carrier medium of claim 442, wherein the program instructions are further computer-executable to  
40 implement:

determining a number of the plurality of terms that occur in the unit of help information in each of the located one or more help information entries; and

displaying the one or more units of help information in order of the determined number of the plurality of terms that occur in the units of help information.

5

445. A method for displaying reference items in a computer-based insurance claims processing system comprising a display device, the method comprising:

displaying on the display device a display page for a step in processing an insurance claim on the insurance claims processing system;

10

displaying one or more step elements in a first portion of the display page, wherein a step element comprises one or more interface items for receiving user input in performing the step, and wherein a user of the insurance claims processing system interacts with the step elements in performing the step;

displaying help information for the step in a second portion of the display page;

15

the user making a first selection of a first interface item displayed on the display device;

reducing a size of the second portion of the display page in response to the user making the first selection of the first interface item; and

expanding a size of the first portion of the display page in response to the user making the first selection of the first interface item, wherein the first portion is expanded into a region occupied by the

20

second portion prior to said reducing the size of the second portion.

446. The method of claim 445,

wherein said reducing the size of the second portion of the display page removes a portion of the help information from the display page.

25

447. The method of claim 445,

wherein said reducing the size of the second portion of the display page removes substantially all of the help information from the display page.

30

448. The method of claim 445, further comprising:

displaying one or more additional step elements in the first portion of the display page in response to said expanding the size of the first portion of the display page.

449. The method of claim 445, further comprising:

35

the user making a second selection of the first interface item on the display device;

reducing the size of the first portion of the display page in response to the user making the second selection of the first interface item; and

expanding the size of the second portion of the display page in response to the user making the second selection of the first interface item, wherein the second portion is expanded into a region

40

occupied by the first portion prior to said reducing the size of the first portion.

450. The method of claim 449, further comprising:  
removing one or more of the one or more step elements from the first portion of the display page in response to said reducing the size of the first portion of the display page.

5 451. The method of claim 449, further comprising:  
displaying additional help information in the second portion of the display page in response to said expanding the size of the second portion of the display page.

10 452. A method for displaying reference items in a computer-based insurance claims processing system comprising a display device, the method comprising:  
displaying on the display device a display page for a step in processing an insurance claim on the insurance claims processing system;  
displaying one or more step elements in a first portion of the display page, wherein a user of the insurance claims processing system interacts with the step elements in performing the step;  
15 displaying help information for the step in a second portion of the display page;  
the user selecting a first interface item displayed on the display device;  
reducing a size of the first portion of the display page in response to the user selecting the first interface item; and  
expanding a size of the second portion of the display page in response to the user selecting the first  
20 interface item, wherein the second portion is expanded into a region occupied by the first portion prior to said reducing the size of the first portion.

453. The method of claim 452, further comprising:  
removing one or more of the one or more step elements from the first portion of the display page in  
25 response to said reducing the size of the first portion of the display page.

454. The method of claim 452, further comprising:  
displaying additional help information in the second portion of the display page in response to said  
expanding the size of the second portion of the display page.

30 455. An insurance claims processing system comprising:  
a computer system including a memory medium;  
a display device coupled to the computer system;  
one or more user input devices coupled to the computer system; and  
35 an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:  
display on the display device a display page for a step in processing an insurance claim on the insurance claims processing system;  
display one or more step elements in a first portion of the display page, wherein a step element  
40 comprises one or more interface items for receiving user input in performing the step,

and wherein a user of the insurance claims processing system interacts with the step elements in performing the step;

display help information for the step in a second portion of the display page;

receive a first user input from one of the one or more user input devices, wherein the first user

5 input indicates a user making a first selection of a first interface item on the display;

reduce a size of the second portion of the display page in response to said receiving the first user input; and

expand a size of the first portion of the display page in response to said receiving the first user input, wherein the first portion is expanded into a region occupied by the second

10 portion prior to said reducing the size of the second portion.

456. The system of claim 455,

wherein, in said reducing the size of the second portion of the display page, the insurance claims processing program is further executable to:

15 remove a portion of the help information from the display page.

457. The system of claim 455,

wherein, in said reducing the size of the second portion of the display page, the insurance claims processing program is further executable to:

20 remove substantially all of the help information from the display page.

458. The system of claim 455, wherein the insurance claims processing program is further executable to:

display one or more additional step elements in the first portion of the display page in response to said expanding the size of the first portion of the display page.

25

459. The system of claim 455, wherein the insurance claims processing program is further executable to:

receive a second user input from one of the one or more user input devices, wherein the second user input indicates a user making a second selection of the first interface item on the display;

reduce the size of the first portion of the display page in response to said receiving the second user input;

30 and

expand the size of the second portion of the display page in response to said receiving the second user input, wherein the second portion is expanded into a region occupied by the first portion prior to said reducing the size of the first portion.

35 460. The system of claim 459, wherein the insurance claims processing program is further executable to:

remove one or more of the one or more step elements from the first portion of the display page in response to said reducing the size of the first portion of the display page.

461. The system of claim 459, wherein the insurance claims processing program is further executable to:

40 display additional help information in the second portion of the display page in response to said expanding the size of the second portion of the display page.

462. An insurance claims processing system comprising:

a computer system including a memory medium;

a display device coupled to the computer system;

one or more user input devices coupled to the computer system; and

an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:

display on the display device a display page for a step in processing an insurance claim on the insurance claims processing system;

display one or more step elements in a first portion of the display page, wherein a step element comprises one or more interface items for receiving user input in performing the step, and wherein a user of the insurance claims processing system interacts with the step elements in performing the step;

display help information for the step in a second portion of the display page;

receive a first user input from one of the one or more user input devices, wherein the first user input indicates a user making a first selection of a first interface item on the display;

reduce a size of the first portion of the display page in response to the user selecting the first interface item; and

expand a size of the second portion of the display page in response to the user selecting the first interface item, wherein the second portion is expanded into a region occupied by the first portion prior to said reducing the size of the first portion.

463. The system of claim 462, wherein the insurance claims processing program is further executable to:

remove one or more of the one or more step elements from the first portion of the display page in response to said reducing the size of the first portion of the display page.

464. The system of claim 462, wherein the insurance claims processing program is further executable to:

display additional help information in the second portion of the display page in response to said expanding the size of the second portion of the display page.

465. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

displaying on a display device a display page for a step in processing an insurance claim on a computer-based insurance claims processing system;

displaying one or more step elements in a first portion of the display page, wherein a step element comprises one or more interface items for receiving user input in performing the step, and wherein a user of the insurance claims processing system interacts with the step elements in performing the step;

displaying help information for the step in a second portion of the display page;

the user making a first selection of a first interface item displayed on the display device;

reducing a size of the second portion of the display page in response to the user making the first selection of the first interface item; and

expanding a size of the first portion of the display page in response to the user making the first selection of the first interface item, wherein the first portion is expanded into a region occupied by the second portion prior to said reducing the size of the second portion.

466. The carrier medium of claim 465, wherein said reducing the size of the second portion of the display page removes a portion of the help information from the display page.

467. The carrier medium of claim 465, wherein said reducing the size of the second portion of the display page removes substantially all of the help information from the display page.

468. The carrier medium of claim 465, wherein the program instructions are further computer-executable to implement: displaying one or more additional step elements in the first portion of the display page in response to said expanding the size of the first portion of the display page.

469. The carrier medium of claim 465, wherein the program instructions are further computer-executable to implement: the user making a second selection of the first interface item on the display device; reducing the size of the first portion of the display page in response to the user making the second selection of the first interface item; and expanding the size of the second portion of the display page in response to the user making the second selection of the first interface item, wherein the second portion is expanded into a region occupied by the first portion prior to said reducing the size of the first portion.

470. The carrier medium of claim 469, wherein the program instructions are further computer-executable to implement: removing one or more of the one or more step elements from the first portion of the display page in response to said reducing the size of the first portion of the display page.

471. The carrier medium of claim 469, wherein the program instructions are further computer-executable to implement: displaying additional help information in the second portion of the display page in response to said expanding the size of the second portion of the display page.

472. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

displaying on a display device a display page for a step in processing an insurance claim on a computer-based insurance claims processing system;

displaying one or more step elements in a first portion of the display page, wherein a user of the insurance claims processing system interacts with the step elements in performing the step;

5 displaying help information for the step in a second portion of the display page;

the user selecting a first interface item displayed on the display device;

reducing a size of the first portion of the display page in response to the user selecting the first interface item; and

10 expanding a size of the second portion of the display page in response to the user selecting the first interface item, wherein the second portion is expanded into a region occupied by the first portion prior to said reducing the size of the first portion.

473. The carrier medium of claim 472, wherein the program instructions are further computer-executable to implement:

15 removing one or more of the one or more step elements from the first portion of the display page in response to said reducing the size of the first portion of the display page.

474. The carrier medium of claim 472, wherein the program instructions are further computer-executable to implement:

20 displaying additional help information in the second portion of the display page in response to said expanding the size of the second portion of the display page.

475. A system comprising:

a rules engine which is configured to generate a plurality of insurance claim assessment questions; and

25 a web server coupled to the rules engine, wherein the web server is configured to generate a plurality of web pages comprising the insurance claim assessment questions.

476. The system of claim 475, further comprising:

30 adapter software which is configured to enable communication between the rules engine and the web server.

477. The system of claim 476,

wherein the adapter software comprises one or more component interfaces.

35 478. The system of claim 475, further comprising:

a web browser which is configured to:

receive the plurality of web pages comprising the insurance claim assessment questions from the web server;

display the plurality of web pages comprising the insurance claim assessment questions;

40 receive insurance claim assessment data entered by a user in response to the insurance claim assessment questions during an insurance claim consultation session; and



send the insurance claim assessment data to the web server.

479. The system of claim 478,  
wherein the web server is further configured to:

5           receive the insurance claim assessment data from the web browser; and  
          send the insurance claim assessment data to the rules engine; and  
wherein the rules engine is further configured to estimate a value of an insurance claim as a function of  
the insurance claim assessment data.

10   480. The system of claim 479,  
wherein the insurance claim comprises a bodily injury insurance claim, and wherein the insurance claim  
assessment data comprise one or more bodily injuries and one or more treatments.

481. The system of claim 479,  
15       wherein the rules engine is further configured to send the estimate of the value of the insurance claim to  
          the web browser through the web server; and  
wherein the web browser is further configured to display the estimate of the value of the insurance claim  
received from the rules engine through the web server.

20   482. The system of claim 478,  
wherein the web server and web browser are located on separate computer systems which are  
communicatively coupled through a network.

483. The system of claim 475, further comprising:  
25       a plurality of web browsers, each of which is configured to:  
          receive one or more of the plurality of web pages comprising the insurance claim assessment  
          questions from the web server;  
          display received web pages comprising the insurance claim assessment questions;  
          receive insurance claim assessment data entered by one of a plurality of users in response to the  
30       insurance claim assessment questions during one of a plurality of insurance claim  
          consultation sessions; and  
          send the insurance claim assessment data to the web server.

484. The system of claim 475,  
35       wherein the insurance claim assessment questions comprise bodily injury claim assessment questions.

485. A method comprising:  
using a rules engine to generate a plurality of insurance claim assessment questions; and  
using a web server to generate a plurality of web pages comprising the insurance claim assessment  
40       questions.

486. The method of claim 485, further comprising:  
a web browser receiving the plurality of web pages comprising the insurance claim assessment questions from the web server;  
the web browser displaying the plurality of web pages comprising the insurance claim assessment questions;  
the web browser receiving insurance claim assessment data entered by a user in response to the insurance claim assessment questions during an insurance claim consultation session; and  
the web browser sending the insurance claim assessment data to the web server.

487. The method of claim 486, further comprising:  
the web server receiving the insurance claim assessment data from the web browser;  
the rules engine estimating a value of an insurance claim as a function of the insurance claim assessment data.

488. The method of claim 487,  
wherein the insurance claim comprises a bodily injury insurance claim, and wherein the insurance claim assessment data comprise one or more bodily injuries and one or more treatments of the bodily injuries.

489. The method of claim 487, further comprising:  
sending the estimate of the value of the insurance claim to the web browser; and  
the web browser displaying the estimate of the value of the insurance claim.

490. The method of claim 486,  
wherein the web server and web browser are located on separate computer systems which are communicatively coupled through a network.

491. The method of claim 485, further comprising:  
each of a plurality of web browsers receiving one or more of the plurality of web pages comprising the insurance claim assessment questions from the web server;  
each of the plurality of web browsers displaying the received web pages comprising the insurance claim assessment questions;  
each of the plurality of web browsers receiving insurance claim assessment data entered by one of a plurality of users in response to the insurance claim assessment questions during one of a plurality of insurance claim consultation sessions; and  
each of the plurality of web browsers sending the insurance claim assessment data to the web server.

492. The method of claim 485,  
wherein the insurance claim assessment questions comprise bodily injury claim assessment questions.

493. A method comprising:

providing a rules engine which is configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user in response to insurance claim assessment questions;

providing a web server which is configured to generate a plurality of web pages which are viewable by a web browser;

wrapping the rules engine with a component interface in accordance with a component architecture specification, wherein the component interface comprises one or more definitions of methods of communication between the rules engine and the web server, wherein the methods of communication are operable to transmit the insurance claim assessment data from the web server to the rules engine and operable to transmit the insurance claim assessment questions from the rules engine to the web server.

494. The method of claim 493, wherein the insurance claim assessment data comprise one or more bodily injuries and one or more treatments of the bodily injuries.

495. The method of claim 493, wherein the component architecture specification comprises a Component Object Model specification.

496. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:  
generating a plurality of insurance claim assessment questions; and  
generating a plurality of web pages comprising the insurance claim assessment questions.

497. The carrier medium of claim 496, wherein the program instructions are further computer-executable to implement:  
displaying the plurality of web pages comprising the insurance claim assessment questions; and  
receiving insurance claim assessment data entered by a user in response to the insurance claim assessment questions during an insurance claim consultation session.

498. The carrier medium of claim 497, wherein the program instructions are further computer-executable to implement:  
estimating a value of an insurance claim as a function of the insurance claim assessment data.

499. The carrier medium of claim 498, wherein the insurance claim comprises a bodily injury insurance claim, and wherein the insurance claim assessment data comprise one or more bodily injuries and one or more treatments of the bodily injuries.

500. The carrier medium of claim 498, wherein the program instructions are further computer-executable to implement:

displaying the estimate of the value of the insurance claim.

501. The carrier medium of claim 496,  
wherein the insurance claim assessment questions comprise bodily injury claim assessment questions.

502. A method comprising:

displaying a first page of insurance claim assessment data in a browser program executing on a computer system, wherein the first page comprises one or more specialized navigation commands, and wherein the browser program comprises one or more standard navigation commands;

displaying the specialized navigation commands and the standard navigation commands in the browser; advancing to a second page of insurance claim assessment data;

displaying the second page of insurance claim assessment data in the browser, wherein the second page comprises the specialized navigation commands;

after displaying the second page of insurance claim assessment data, selecting one of the standard navigation commands to move back to the first page of insurance claim assessment data;

after selecting one of the standard navigation commands to move back to the first page of insurance claim assessment data, redisplaying the first page of insurance claim assessment data;

attempting to perform an insurance claim assessment task on the redisplayed first page of insurance claim assessment data;

displaying a navigation error message as a result of the attempting to perform the insurance claim assessment task;

selecting a reset command after displaying the navigation error message, wherein the specialized navigation commands comprise the reset command; and

redisplaying the second page of insurance claim assessment data after selecting the reset command.

503. The method of claim 502,

wherein the insurance claim assessment data comprises bodily injury claim assessment data; and

wherein the insurance claim assessment task comprises a bodily injury claim assessment task.

504. The method of claim 502,

wherein the specialized navigation commands comprise specialized navigation buttons;

wherein the reset command comprises a reset button; and

wherein the selecting the reset command comprises pushing the reset button.

505. The method of claim 502,

wherein the standard navigation commands comprise standard navigation buttons;

wherein the selecting one of the standard navigation commands comprises pushing one of the standard navigation buttons.

506. The method of claim 502,

wherein the specialized navigation commands comprise a back command and a reset command, wherein the back command is operable to redisplay a previous page of insurance claim assessment data.

507. The method of claim 502,

wherein the standard navigation commands comprise a forward command and a back command.

508. The method of claim 502,

performing a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

509. The method of claim 502,

wherein the navigation error message comprises an instruction to select the reset command.

510. The method of claim 502,

wherein the browser program comprises a web browser program which is operable to read and display web pages, and wherein the first page and second page of insurance claim assessment data comprise web pages.

511. The method of claim 502,

wherein the computer system which executes the browser program comprises a client computer system, wherein the client computer system is communicatively coupled to a server computer system, and wherein the server computer system is operable to generate and send to the client computer system the first page and second page of insurance claim assessment data.

512. The method of claim 502,

wherein the insurance claim assessment task comprises entering insurance claim assessment data, wherein the insurance claim assessment data comprises information relevant to an estimate of a value of an insurance claim.

513. The method of claim 502,

wherein the insurance claim assessment task comprises saving a status of an insurance claim consultation, wherein the insurance claim consultation comprises an interactive determination of an estimate of a value of an insurance claim.

514. A method comprising:

displaying a first page of insurance claim assessment data in a browser program executing on a computer system, wherein the browser program comprises one or more standard navigation commands;

displaying the standard navigation commands in the browser;

advancing to a second page of insurance claim assessment data;

displaying the second page of insurance claim assessment data in the browser;

after displaying the second page of insurance claim assessment data, selecting one of the standard navigation commands to move back to the first page of insurance claim assessment data;  
after selecting one of the standard navigation commands to move back to the first page of insurance claim assessment data, redisplaying the first page of insurance claim assessment data;  
5 attempting to perform an insurance claim assessment task on the redisplayed first page of insurance claim assessment data;  
generating a navigation error as a result of the attempting to perform an insurance claim assessment task;  
and  
redisplaying the second page of insurance claim assessment data after the generating the navigation error.

10 515. The method of claim 514, further comprising:  
displaying a navigation error message as a result of the generating the navigation error;  
selecting a reset command after displaying the navigation error message; and  
wherein the redisplaying the second page of insurance claim assessment data after the generating the  
15 navigation error comprises redisplaying the second page of insurance claim assessment data after selecting the reset command.

516. The method of claim 515,  
wherein the reset command comprises a reset button.

20 517. The method of claim 516,  
wherein the selecting the reset button comprises pushing the reset button.

518. The method of claim 515,  
25 wherein the navigation error message comprises an instruction to select the reset command.

519. The method of claim 514,  
wherein the insurance claim assessment data comprises bodily injury claim assessment data; and  
wherein the insurance claim assessment task comprises a bodily injury claim assessment task.

30 520. The method of claim 514,  
wherein the standard navigation commands comprise standard navigation buttons;  
wherein the selecting one of the standard navigation commands comprises pushing one of the standard navigation buttons.

35 521. The method of claim 514,  
wherein the standard navigation commands comprise a forward command and a back command.

40 522. The method of claim 514,  
performing a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

523. The method of claim 514,  
wherein the browser program comprises a web browser program which is operable to read and display  
web pages, and wherein the first page and second page of insurance claim assessment data  
comprise web pages.

524. The method of claim 514,  
wherein the computer system which executes the browser program comprises a client computer system,  
wherein the client computer system is communicatively coupled to a server computer system,  
and wherein the server computer system is operable to generate and send to the client computer  
system the first page and second page of insurance claim assessment data.

525. The method of claim 514,  
wherein the insurance claim assessment task comprises entering insurance claim assessment data,  
wherein the insurance claim assessment data comprises information relevant to an estimate of a  
value of an insurance claim.

526. The method of claim 514,  
wherein the insurance claim assessment task comprises saving a status of an insurance claim  
consultation, wherein the insurance claim consultation comprises an interactive determination of  
an estimate of a value of an insurance claim.

527. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

displaying a first page of insurance claim assessment data in a browser program executing on a computer  
system, wherein the browser program comprises one or more standard navigation commands;  
displaying the standard navigation commands in the browser;  
advancing to a second page of insurance claim assessment data;  
displaying the second page of insurance claim assessment data in the browser;  
after displaying the second page of insurance claim assessment data, permitting a user selection of one of  
the standard navigation commands to move back to the first page of insurance claim assessment  
data;  
after the user selection of one of the standard navigation commands to move back to the first page of  
insurance claim assessment data, redisplaying the first page of insurance claim assessment data;  
attempting to perform an insurance claim assessment task on the redisplayed first page of insurance  
claim assessment data;  
generating a navigation error as a result of the attempting to perform an insurance claim assessment task;  
and  
redisplaying the second page of insurance claim assessment data after the generating the navigation error.

528. The carrier medium of claim 527, wherein the program instructions are further computer-executable to implement:

displaying a navigation error message as a result of the generating the navigation error;

permitting a user selection of a reset command after displaying the navigation error message; and

5 wherein the redisplaying the second page of insurance claim assessment data after the generating the navigation error comprises redisplaying the second page of insurance claim assessment data after the user selection of the reset command.

529. The carrier medium of claim 528,

10 wherein the navigation error message comprises an instruction to select the reset command.

530. The carrier medium of claim 528,

wherein the reset command comprises a reset button.

531. The carrier medium of claim 530,

15 wherein the user selection of the reset command comprises pushing the reset button.

532. The carrier medium of claim 527,

wherein the insurance claim assessment data comprises bodily injury claim assessment data; and

20 wherein the insurance claim assessment task comprises a bodily injury claim assessment task.

533. The carrier medium of claim 527,

wherein the standard navigation commands comprise standard navigation buttons;

25 wherein the user selection of one of the standard navigation commands comprises pushing one of the standard navigation buttons.

534. The carrier medium of claim 527,

wherein the standard navigation commands comprise a forward command and a back command.

30 535. The carrier medium of claim 527, wherein the program instructions are further computer-executable to implement:

performing a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

35 536. The carrier medium of claim 527,

wherein the browser program comprises a web browser program which is operable to read and display web pages, and wherein the first page and second page of insurance claim assessment data comprise web pages.

40 537. The carrier medium of claim 527,



wherein the computer system which executes the browser program comprises a client computer system,  
wherein the client computer system is communicatively coupled to a server computer system,  
and wherein the server computer system is operable to generate and send to the client computer  
system the first page and second page of insurance claim assessment data.

5

538. The carrier medium of claim 527,  
wherein the insurance claim assessment task comprises entering insurance claim assessment data,  
wherein the insurance claim assessment data comprises information relevant to an estimate of a  
value of an insurance claim.

10

539. The carrier medium of claim 527,  
wherein the insurance claim assessment task comprises saving a status of an insurance claim  
consultation, wherein the insurance claim consultation comprises an interactive determination of  
an estimate of a value of an insurance claim.

15

540. A system comprising:  
a server computer system comprising a first CPU and a first memory coupled to the CPU, wherein the  
first memory stores an insurance claim processing server which is executable by the first CPU,  
and wherein the insurance claim processing server is executable by the first CPU to generate a  
first page of insurance claim assessment data and a second page of insurance claim assessment  
data;  
a client computer system comprising a second CPU, a second memory coupled to the CPU, and a display  
coupled to the second CPU, wherein the client computer system is communicatively coupled to  
the server computer system through a network, wherein the second memory stores a browser  
program which is executable by the second CPU, and wherein the browser program is  
executable by the second CPU to:  
display the first page of insurance claim assessment data on the display, wherein the browser program  
comprises one or more standard navigation commands;  
display the standard navigation commands on the display;  
advance to the second page of insurance claim assessment data;  
display the second page of insurance claim assessment data on the display;  
after displaying the second page of insurance claim assessment data, permit a user selection of one of the  
standard navigation commands to move back to the first page of insurance claim assessment  
data;  
after the user selection of one of the standard navigation commands to move back to the first page of  
insurance claim assessment data, redisplay the first page of insurance claim assessment data on  
the display;  
attempt to perform an insurance claim assessment task on the redisplayed first page of insurance claim  
assessment data;  
redisplay the second page of insurance claim assessment data on the display after the attempting to  
perform an insurance claim assessment task on the redisplayed first page.

20

25

30

35

40

541. The system of claim 540, wherein the insurance claim processing server is further executable by the first CPU to:

5 generate a navigation error as a result of the attempting to perform an insurance claim assessment task on the redisplayed first page of insurance claim assessment data.

542. The system of claim 541, wherein the browser is further executable by the second CPU to:

display a navigation error message on the display as a result of the insurance claim processing server generating the navigation error;

10 permit a user selection of a reset command after displaying the navigation error message; and

wherein the redisplaying the second page of insurance claim assessment data after the attempting to perform an insurance claim assessment task on the redisplayed first page comprises redisplaying the second page of insurance claim assessment data on the display after the user selection of the reset command.

15 543. The system of claim 542,

wherein the navigation error message comprises an instruction to select the reset command.

544. The system of claim 542,

20 wherein the reset command comprises a reset button.

545. The system of claim 544,

wherein the user selection of the reset command comprises pushing the reset button.

25 546. The system of claim 540,

wherein the insurance claim assessment data comprises bodily injury claim assessment data; and wherein the insurance claim assessment task comprises a bodily injury claim assessment task.

547. The system of claim 540,

30 wherein the standard navigation commands comprise standard navigation buttons;

wherein the user selection of one of the standard navigation commands comprises pushing one of the standard navigation buttons.

548. The system of claim 540,

35 wherein the standard navigation commands comprise a forward command and a back command.

549. The system of claim 540, wherein the insurance claim processing server is further executable by the first CPU to:

40 perform a second insurance claim assessment task on the redisplayed second page of insurance claim assessment data.

550. The system of claim 540,  
wherein the browser program comprises a web browser program which is operable to read and display  
web pages, and wherein the first page and second page of insurance claim assessment data  
comprise web pages.

5

551. The system of claim 540,  
wherein the insurance claim assessment task comprises entering insurance claim assessment  
data, wherein the insurance claim assessment data comprises information relevant to an  
estimate of a value of an insurance claim.

10

552. The system of claim 540,  
wherein the insurance claim assessment task comprises saving a status of an insurance claim  
consultation, wherein the insurance claim consultation comprises an interactive determination of  
an estimate of a value of an insurance claim.

15

553. A system comprising:  
an insurance claim processing server comprising a first CPU and a first memory coupled to the first  
CPU, wherein the first memory stores a first set of program instructions which are executable by  
the first CPU to:  
estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user  
during an insurance claim consultation session; and  
a client computer system comprising a second CPU and a second memory coupled to the second CPU,  
wherein the client computer system is coupled to the insurance claim processing server through  
a network, wherein the second memory stores a second set of program instructions which are  
executable by the second CPU to:  
receive the insurance claim assessment data entered by the user; and  
send the insurance claim assessment data across the network to the insurance claim processing server.

20

25

554. The system of claim 553,  
wherein the insurance claim comprises a bodily injury claim, and wherein the estimate of the value of the  
insurance claim comprises an estimate of bodily injury general damages.

30

555. The system of claim 553,  
wherein the first set of program instructions comprises a rules engine and a web server; and  
wherein the second set of program instructions comprises a web browser.

35

556. The system of claim 555,  
wherein the first set of program instructions are further executable by the first CPU to generate and send  
to the client computer system a plurality of web pages comprising insurance claim assessment  
questions;

40

wherein the second set of program instructions are further executable by the second CPU to display the web pages comprising the insurance claim assessment questions during the insurance claim consultation session.

- 5 557. The system of claim 553,  
wherein the network comprises the Internet.
558. The system of claim 553,  
wherein the insurance claim processing server and the client computer system are operable to  
10 communicate over the network via TCP/IP.
559. The system of claim 553, further comprising:  
a second client computer system comprising a third CPU and a third memory, wherein the second client  
computer system is coupled to the insurance claim processing server through the network,  
15 wherein the third memory stores a third set of program instructions which are executable by the  
third CPU to:  
receive a second set of insurance claim assessment data entered by a second user; and  
send the second set of insurance claim assessment data across the network to the insurance claim  
processing server; and  
20 wherein the first set of program instructions are further executable by the first CPU to:  
estimate a value of a second insurance claim as a function of the second set of insurance claim  
assessment data entered by the second user during a second insurance claim consultation  
session.
- 25 560. The system of claim 553,  
wherein the insurance claim assessment data comprise one or more bodily injuries and one or more  
treatments of the bodily injuries.
561. A method comprising:  
30 receiving insurance claim assessment data entered by a user in response to a plurality of insurance claim  
assessment questions during an insurance claim consultation session; and  
sending the insurance claim assessment data across a network via one or more Internet protocols to an  
insurance claim processing server.
- 35 562. The method of claim 561,  
wherein the Internet protocols comprise TCP/IP.
563. The method of claim 561,  
wherein the Internet protocols comprise HTTP.
- 40 564. The method of claim 561, further comprising:

estimating a value of an insurance claim as a function of the insurance claim assessment data entered by the user.

565. The method of claim 564, further comprising:

5 sending the estimated value of the insurance claim across the network via the one or more Internet protocols to a client computer system.

566. The method of claim 564,

10 wherein the insurance claim comprises a bodily injury claim, and wherein the estimated value of the insurance claim comprises an estimate of bodily injury general damages.

567. The method of claim 561,

15 wherein the insurance claim assessment data comprise one or more bodily injuries and one or more treatments of the bodily injuries.

568. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

20 receiving insurance claim assessment data entered by a user in response to a plurality of insurance claim assessment questions during an insurance claim consultation session; and  
sending the insurance claim assessment data across a network via one or more Internet protocols to an insurance claim processing server.

569. The carrier medium of claim 568,

25 wherein the Internet protocols comprise TCP/IP.

570. The carrier medium of claim 568,

wherein the Internet protocols comprise HTTP.

571. The carrier medium of claim 568, wherein the program instructions are further computer-executable to  
30 implement:

estimating a value of an insurance claim as a function of the insurance claim assessment data entered by the user.

572. The carrier medium of claim 571, wherein the program instructions are further computer-executable to  
35 implement:

sending the estimated value of the insurance claim across the network via the one or more Internet protocols to a client computer system.

573. The carrier medium of claim 571,

40 wherein the insurance claim comprises a bodily injury claim, and wherein the estimated value of the insurance claim comprises an estimate of bodily injury general damages.

574. The carrier medium of claim 568,  
wherein the insurance claim assessment data comprise one or more bodily injuries and one or more  
treatments of the bodily injuries.

5

575. A method comprising:  
hosting an insurance claim processing server which is configured to estimate a value of an insurance  
claim as a function of insurance claim assessment data entered by a user during an insurance  
claim consultation session; and

10

charging the user for access to the insurance claim processing server through client software according to  
a pricing model, wherein the client software is operable to receive the insurance claim  
assessment data entered by the user and send the insurance claim assessment data across a  
network to the insurance claim processing server, and wherein the insurance claim processing  
server is operable to send the estimate of the value of the insurance claim to the client software  
across the network.

15

576. The method of claim 575,  
wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation sessions  
conducted by the user.

20

577. The method of claim 575,  
wherein the pricing model comprises a fee for each fixed period of access time of access by the user to  
the insurance claim processing server through the client software.

25

578. The method of claim 577,  
wherein the fixed period of access time comprises an hourly multiple.

579. The method of claim 577,  
wherein the fixed period of access time comprises a weekly multiple.

30

580. The method of claim 577,  
wherein the fixed period of access time comprises a monthly multiple.

581. The method of claim 577,  
wherein the fixed period of access time comprises a yearly multiple.

35

582. The method of claim 577,  
wherein the fixed period of access time comprises a multiple of minutes.

40

583. The method of claim 575,

wherein the pricing model comprises a fee which varies directly with an amount of time spent accessing the insurance claim consultation session through the client software.

584. The method of claim 575,  
5 wherein the user comprises an insurance organization having a particular size.

585. The method of claim 584,  
wherein the pricing model varies according to the size of the user.

10 586. The method of claim 585,  
wherein the size of the user comprises a function of a quantity of employees of the user.

587. The method of claim 585,  
wherein the size of the user comprises a function of a revenue of the user over a period of time.

15 588. The method of claim 585,  
wherein the size of the user comprises a function of a quantity of consultation sessions conducted by the user over a period of time.

20 589. The method of claim 575,  
wherein the pricing model comprises a pricing discount given to the user after a particular quantity of insurance claim consultation sessions conducted by the user in a particular period of time.

25 590. The method of claim 575,  
wherein the insurance claim consultation session comprises one or more insurance claim consultation transactions;  
wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation transactions conducted by the user during one or more insurance claim consultation sessions.

30 591. The method of claim 575,  
wherein the insurance claim comprises a bodily injury claim, and wherein the estimate of the value of the insurance claim comprises an estimate of bodily injury general damages.

35 592. The method of claim 575,  
wherein the network comprises the Internet.

593. The method of claim 575,  
wherein the client software comprises a web browser.

40 594. The method of claim 593,

wherein the insurance claim processing server comprises a rules engine and a web server, wherein the web server is operable to enable communication between the rules engine and the web browser.

595. The method of claim 575, further comprising:

5 charging a second user for access to the insurance claim processing server through client software according to a second pricing model.

596. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

10 hosting an insurance claim processing server which is configured to estimate a value of an insurance claim as a function of insurance claim assessment data entered by a user during an insurance claim consultation session; and  
charging the user for access to the insurance claim processing server through client software according to a pricing model, wherein the client software is operable to receive the insurance claim  
15 assessment data entered by the user and send the insurance claim assessment data across a network to the insurance claim processing server, and wherein the insurance claim processing server is operable to send the estimate of the value of the insurance claim to the client software across the network.

20 597. The carrier medium of claim 596,  
wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation sessions conducted by the user.

598. The carrier medium of claim 596,  
25 wherein the pricing model comprises a fee for each fixed period of access time of access by the user to the insurance claim processing server through the client software.

599. The carrier medium of claim 598,  
wherein the fixed period of access time comprises an hourly multiple.

30 600. The carrier medium of claim 598,  
wherein the fixed period of access time comprises a weekly multiple.

601. The carrier medium of claim 598,  
35 wherein the fixed period of access time comprises a monthly multiple.

602. The carrier medium of claim 598,  
wherein the fixed period of access time comprises a yearly multiple.

40 603. The carrier medium of claim 598,  
wherein the fixed period of access time comprises a multiple of minutes.



604. The carrier medium of claim 596,  
wherein the pricing model comprises a fee which varies directly with an amount of time spent accessing  
the insurance claim consultation session through the client software.

5

605. The carrier medium of claim 596,  
wherein the user comprises an insurance organization having a particular size.

606. The carrier medium of claim 605,  
wherein the pricing model varies according to the size of the user.

10

607. The carrier medium of claim 606,  
wherein the size of the user comprises a function of a quantity of employees of the user.

15

608. The carrier medium of claim 606,  
wherein the size of the user comprises a function of a revenue of the user over a period of time.

609. The carrier medium of claim 606,  
wherein the size of the user comprises a function of a quantity of insurance claim consultation sessions  
conducted by the user over a period of time.

20

610. The carrier medium of claim 596,  
wherein the pricing model comprises a pricing discount given to the user after a particular quantity of  
consultation sessions conducted by the user in a particular period of time.

25

611. The carrier medium of claim 596,  
wherein the insurance claim consultation session comprises one or more insurance claim consultation  
transactions;  
wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation  
transactions conducted by the user during one or more insurance claim consultation sessions.

30

612. The carrier medium of claim 596,  
wherein the insurance claim comprises a bodily injury claim, and wherein the estimate of the value of the  
insurance claim comprises an estimate of bodily injury general damages.

35

613. The carrier medium of claim 596,  
wherein the network comprises the Internet.

614. The carrier medium of claim 596,  
wherein the client software comprises a web browser.

40

615. The carrier medium of claim 614,  
wherein the insurance claim processing server comprises a rules engine and a web server, wherein the  
web server is operable to enable communication between the rules engine and the web browser.

5 616. The carrier medium of claim 596, wherein the program instructions are further computer-executable to  
implement:

charging a second user for access to the insurance claim processing server through the client software  
according to a second pricing model.

10 617. A system comprising:

an insurance claim processing server comprising a first CPU and a first memory coupled to the first  
CPU, wherein the first memory stores a first set of program instructions which are executable by  
the first CPU to estimate a value of an insurance claim as a function of insurance claim  
assessment data entered by a user during an insurance claim consultation session; and

15 a client computer system comprising a second CPU and a second memory coupled to the second CPU,  
wherein the client computer system is coupled to the insurance claim processing server through  
a network, wherein the second memory stores a second set of program instructions which are  
executable by the second CPU to receive the insurance claim assessment data entered by the  
user and send the insurance claim assessment data across the network to the insurance claim  
20 processing server; and

wherein the first set of program instructions are further executable by the first CPU to charge the user for  
access to the insurance claim processing server according to a pricing model.

25 618. The system of claim 617,

wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation sessions  
conducted by the user.

619. The system of claim 617,

wherein the pricing model comprises a fee for each fixed period of access time of access by the user to  
30 the insurance claim processing server through the client computer system across the network.

620. The system of claim 619,

wherein the fixed period of access time comprises an hourly multiple.

35 621. The system of claim 619,

wherein the fixed period of access time comprises a weekly multiple.

622. The system of claim 619,

wherein the fixed period of access time comprises a monthly multiple.

40 623. The system of claim 619,

wherein the fixed period of access time comprises a yearly multiple.

624. The system of claim 619,  
wherein the fixed period of access time comprises a multiple of minutes.

5

625. The system of claim 617,  
wherein the pricing model comprises a fee which varies directly with an amount of time spent accessing  
the insurance claim consultation session through the client computer system across the network.

10 626. The system of claim 617,  
wherein the user comprises an insurance organization having a particular size.

627. The system of claim 626,  
wherein the pricing model varies according to the size of the user.

15

628. The system of claim 627,  
wherein the size of the user comprises a function of a quantity of employees of the user.

20 629. The system of claim 627,  
wherein the size of the user comprises a function of a revenue of the user over a period of time.

630. The system of claim 627,  
wherein the size of the user comprises a function of a quantity of consultation sessions conducted by  
the user over a period of time.

25

631. The system of claim 617,  
wherein the pricing model comprises a pricing discount given to the user after a particular quantity of  
insurance claim consultation sessions conducted by the user in a particular period of time.

30 632. The system of claim 617,  
wherein the insurance claim consultation session comprises one or more insurance claim consultation  
transactions;  
wherein the pricing model comprises a fee for each of a plurality of insurance claim consultation  
transactions conducted by the user during one or more insurance claim consultation sessions.

35

633. The system of claim 617,  
wherein the insurance claim comprises a bodily injury claim, and wherein the estimate of the value of the  
insurance claim comprises an estimate of bodily injury general damages.

40 634. The system of claim 617,  
wherein the network comprises the Internet.

635. The system of claim 617,  
wherein the second set of program instructions comprise a web browser.

5 636. The system of claim 635,  
wherein the insurance claim processing server comprises a rules engine and a web server, wherein the  
web server is operable to enable communication between the rules engine and the web browser.

637. The system of claim 617, further comprising:

10 a second client computer system comprising a third CPU and a third memory, wherein the second client  
computer system is coupled to the insurance claim processing server through the network,  
wherein the third memory stores a third set of program instructions which are executable by the  
third CPU to receive a second set of insurance claim assessment data entered by a second user  
and send the second set of insurance claim assessment data across the network to the insurance  
15 claim processing server; and

wherein the first set of program instructions are further executable by the first CPU to estimate a value  
of a second insurance claim as a function of the second set of insurance claim assessment data  
entered by the second user during a second insurance claim consultation session and charge the  
second user for access to the insurance claim processing server according to a second pricing  
20 model.

638. A method for processing an insurance claim, the method comprising:

initiating the processing of the insurance claim, wherein the processing of the insurance claim comprises  
a plurality of steps;

25 displaying a table of contents, wherein the table of contents comprises a list of the steps associated with  
the processing of the insurance claim.

639. A system for processing an insurance claim, the system comprising:

a CPU;

30 a memory coupled to the CPU, wherein the memory stores program instructions which are executable by  
the CPU to:

initiate the processing of the insurance claim, wherein the processing of the insurance claim  
comprises a plurality of steps;

35 display a table of contents, wherein the table of contents comprises a list of the steps associated  
with the processing of the insurance claim.

640. A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:

40 initiating processing of an insurance claim, wherein the processing of the insurance claim comprises a  
plurality of steps;

displaying a table of contents, wherein the table of contents comprises a list of the steps associated with the processing of the insurance claim.

641. A method comprising:

specifying one or more contributing factors to the value of an insurance claim;  
determining one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the contributing factors, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim.

642. A system comprising:

a CPU;

a memory coupled to the CPU, wherein the memory stores program instructions which are executable by the CPU to:

specify one or more contributing factors to the value of an insurance claim;  
determine one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the contributing factors, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim.

643. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

specifying one or more contributing factors to the value of an insurance claim;  
determining one or more contributing factor values, wherein each of the contributing factor values corresponds to one of the contributing factors, and wherein each of the contributing factor values measures an estimated impact of the corresponding insurance code on the value of the insurance claim.

644. A system comprising:

a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;

a database which stores said formulas usable by said plurality of rules, wherein said database is separate from said rules engine.

645. A method comprising:

providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;

transforming formula data into formulas usable by said plurality of rules.

646. A carrier medium comprising program instructions, wherein said program instructions are computer-executable to implement:

providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;  
transforming formula data into formulas usable by said plurality of rules.

- 5 647. A system comprising:  
a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;  
a database which stores rules data which is transformable to said plurality of rules, wherein said database is separate from said rules engine.

10

648. A method comprising:  
providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;  
transforming rules data into said plurality of rules for use by said rules engine.

15

649. A carrier medium comprising program instructions, wherein said program instructions are computer-executable to implement:

providing a rules engine which is operable to assess a value of an insurance claim as a function of a plurality of rules;

20

transforming rules data into said plurality of rules for use by said rules engine.

650. A method comprising:  
generating a request to display a message;  
searching a database for a matching entry which matches the requested message, wherein each entry in the database comprises a corresponding message text;  
displaying the matching message text corresponding to the requested message.

25

651. A system comprising:  
a CPU;  
a memory coupled to the CPU, wherein the memory stores a program which is executable by the CPU to:  
generate a request to display a message;  
search a database for a matching entry which matches the requested message, wherein each entry in the database comprises a corresponding message text;  
display the matching message text corresponding to the requested message.

35

652. A carrier medium comprising program instructions, wherein the program instructions are executable by a computer system to implement a method of:  
generating a request to display a message;  
searching a database for a matching entry which matches the requested message, wherein each entry in the database comprises a corresponding message text;  
displaying the matching message text corresponding to the requested message.

40

653. A method for determining relevance values of terms, the method comprising:  
determining a word position of an occurrence of a term in a portion of a document, wherein the portion  
of the document comprises one or more words;  
5 determining a total word count of the portion of the document; and  
determining a relevance value for the occurrence of the term in the portion of the document using the  
word position of the occurrence and the total word count of the portion of the document.

654. An insurance claims processing system comprising:  
10 a computer system including a memory medium;  
a database stored in the memory medium, wherein the database comprises one or more documents;  
program instructions stored in the memory medium and executable within the computer system, wherein  
the program instructions are executable to:  
determine a word position of an occurrence of a term in a portion of a first document in the  
15 database, wherein the portion of the first document comprises one or more words;  
determine a total word count of the portion of the first document; and  
determine a relevance value for the occurrence of the term in the portion of the first document  
using the word position of the occurrence and the total word count of the portion of the  
first document.

20 655. A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:  
determining a word position of an occurrence of a term in a portion of a document, wherein the portion  
of the document comprises one or more words;  
25 determining a total word count of the portion of the document; and  
determining a relevance value for the occurrence of the term in the portion of the document using the  
word position of the occurrence and the total word count of the portion of the document.

656. A method for providing context-sensitive help, the method comprising:  
30 initiating processing of an insurance claim, wherein said processing of the insurance claim comprises one  
or more steps;  
locating a help information entry for one of the steps in a help database;  
displaying the help information entry.

35 657. An insurance claims processing system comprising:  
a computer system including a memory medium;  
a help database for the insurance claims processing system stored in the memory medium, wherein the  
help database comprises one or more documents; and  
a program stored in the memory medium and executable within the computer system, wherein the  
40 program is executable to:

initiate processing of an insurance claim, wherein said processing of the insurance claim comprises one or more steps;  
locate a help information entry for one of the steps in a help database;  
display the help information entry.

5

658. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

initiating processing of an insurance claim, wherein said processing of the insurance claim comprises one or more steps;

10

locating a help information entry for one of the steps in a help database;  
displaying the help information entry.

659. A method comprising:

displaying a display page for a step in processing an insurance claim;

15

displaying one or more step elements in a first portion of the display page;  
displaying help information for the step in a second portion of the display page;  
reducing a size of the second portion of the display page; and  
expanding a size of the first portion of the display page.

20

660. An insurance claims processing system comprising:

a computer system including a memory medium;

an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:

25

display a display page for a step in processing an insurance claim;  
display one or more step elements in a first portion of the display page;  
display help information for the step in a second portion of the display page;  
reduce a size of the second portion of the display page; and  
expand a size of the first portion of the display page.

30

661. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

displaying a display page for a step in processing an insurance claim;

displaying one or more step elements in a first portion of the display page;

displaying help information for the step in a second portion of the display page;

35

reducing a size of the second portion of the display page; and  
expanding a size of the first portion of the display page.

662. A system comprising:

a rules engine which is configured to generate a plurality of insurance data; and

40

a server coupled to the rules engine, wherein the server is configured to generate a plurality of internet-accessible pages comprising the insurance data.



663. A method comprising:  
using a rules engine to generate insurance data; and  
using a server to generate a plurality of internet-accessible pages comprising the insurance data.

5

664. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:  
generating insurance data; and  
generating a plurality of internet-accessible pages comprising the insurance data.

10

665. A method comprising:  
displaying a first page of insurance data in a browser program;  
displaying a second page of insurance data;  
selecting a navigation command to move back to the first page of insurance data;  
redisplaying the first page of insurance data;  
selecting a reset command;  
redisplaying the second page of insurance data.

15

666. A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:  
displaying a first page of insurance data in a browser program;  
displaying a second page of insurance data;  
selecting a navigation command to move back to the first page of insurance data;  
redisplaying the first page of insurance data;  
selecting a reset command;  
redisplaying the second page of insurance data.

20

25

667. A system comprising:  
a computer system including a memory medium;  
an insurance claims processing program stored in the memory medium and executable within the computer system, wherein the insurance claims processing program is executable to:  
display a first page of insurance data in a browser program;  
display a second page of insurance data;  
select a navigation command to move back to the first page of insurance data;  
redisplay the first page of insurance data;  
select a reset command;  
redisplay the second page of insurance data.

30

35

668. A system comprising:  
an insurance server comprising a first CPU and a first memory coupled to the first CPU, wherein the first memory stores a first set of program instructions which are executable by the first CPU to:

40

estimate a value of an insurance claim as a function of insurance data; and  
a client computer system comprising a second CPU and a second memory coupled to the second CPU,  
wherein the client computer system is coupled to the insurance server through a network,  
wherein the second memory stores a second set of program instructions which are executable by  
5 the second CPU to:  
receive insurance data entered by a user; and  
send the insurance data across the network to the insurance server.

669. A method comprising:

10 receiving insurance data entered by a user in response to a plurality of insurance questions; and  
sending the insurance data across a network to an insurance server.

670. A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:

15 receiving insurance data entered by a user in response to a plurality of insurance questions; and  
sending the insurance data across a network to an insurance server.

671. A method comprising:

20 hosting an insurance server which is configured to estimate a value of an insurance claim; and  
charging a fee for access to the insurance server through client software.

672. A carrier medium comprising program instructions, wherein the program instructions are computer-  
executable to implement:

25 hosting an insurance server which is configured to estimate a value of an insurance claim; and  
charging a fee for access to the insurance server through client software.

673. A system comprising:

an insurance server comprising a first CPU and a first memory coupled to the first CPU, wherein the first  
memory stores a first set of program instructions which are executable by the first CPU to  
30 estimate a value of an insurance claim as a function of insurance data; and  
a client computer system comprising a second CPU and a second memory coupled to the second CPU,  
wherein the client computer system is coupled to the insurance claim processing server through  
a network; and  
wherein the first set of program instructions are further executable to charge a fee for access by the client  
35 computer system to the insurance server.

1 / 39

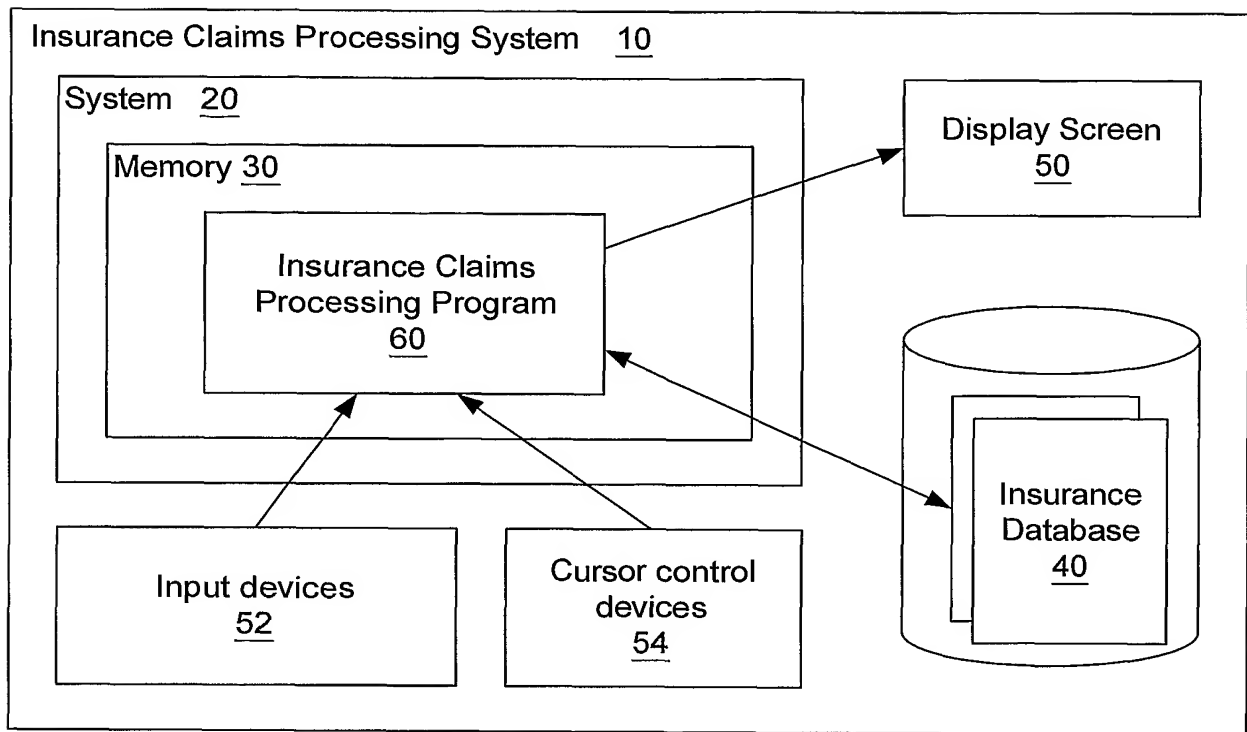


FIG. 1a

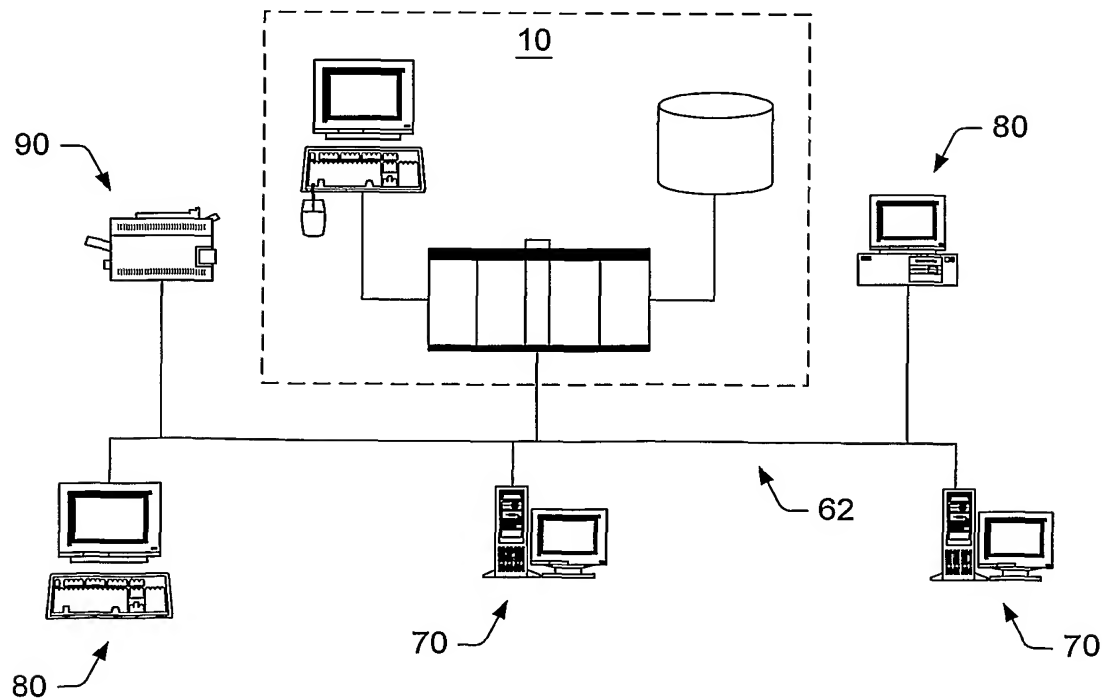


FIG. 1b

2 / 39

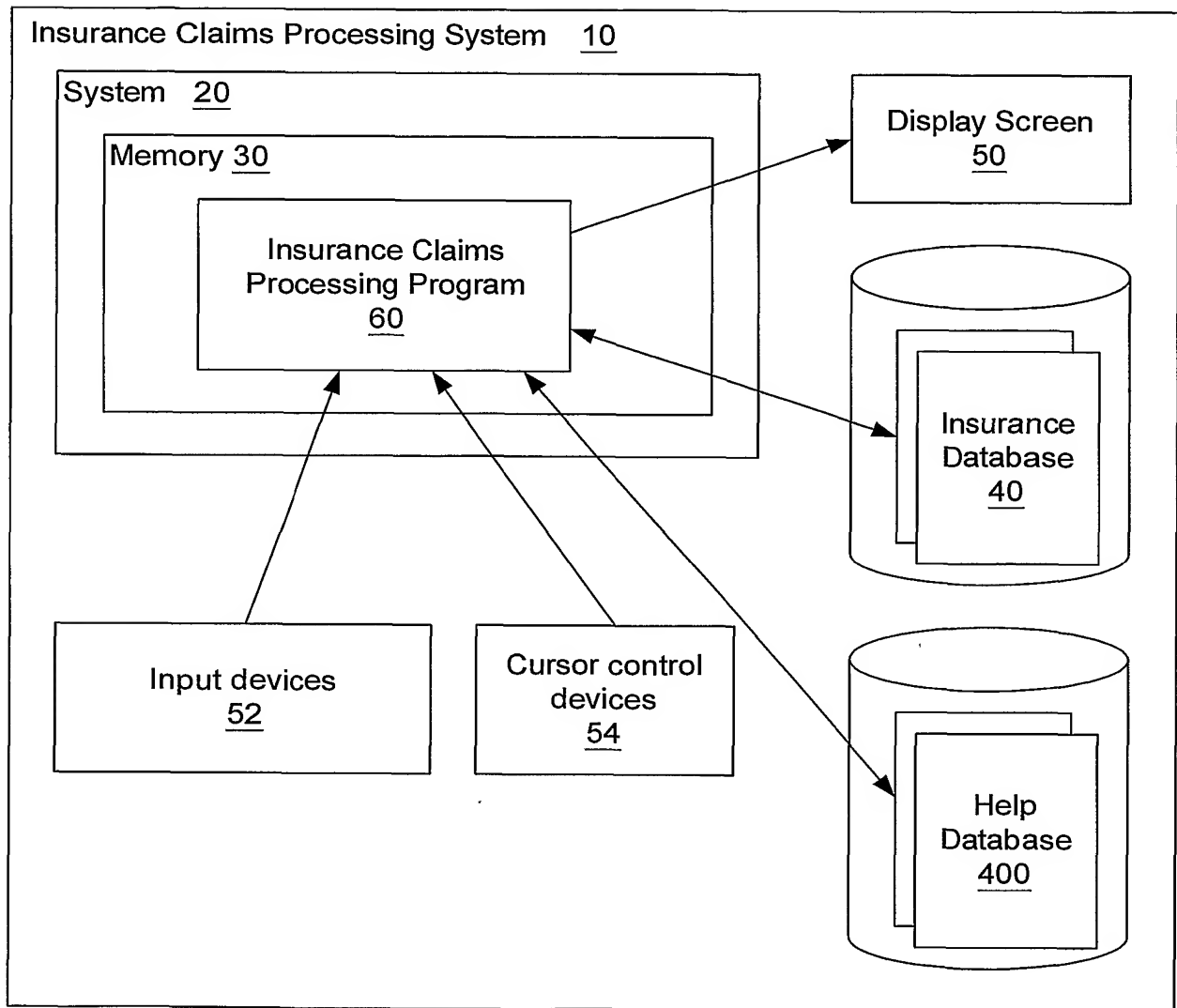


FIG. 1c

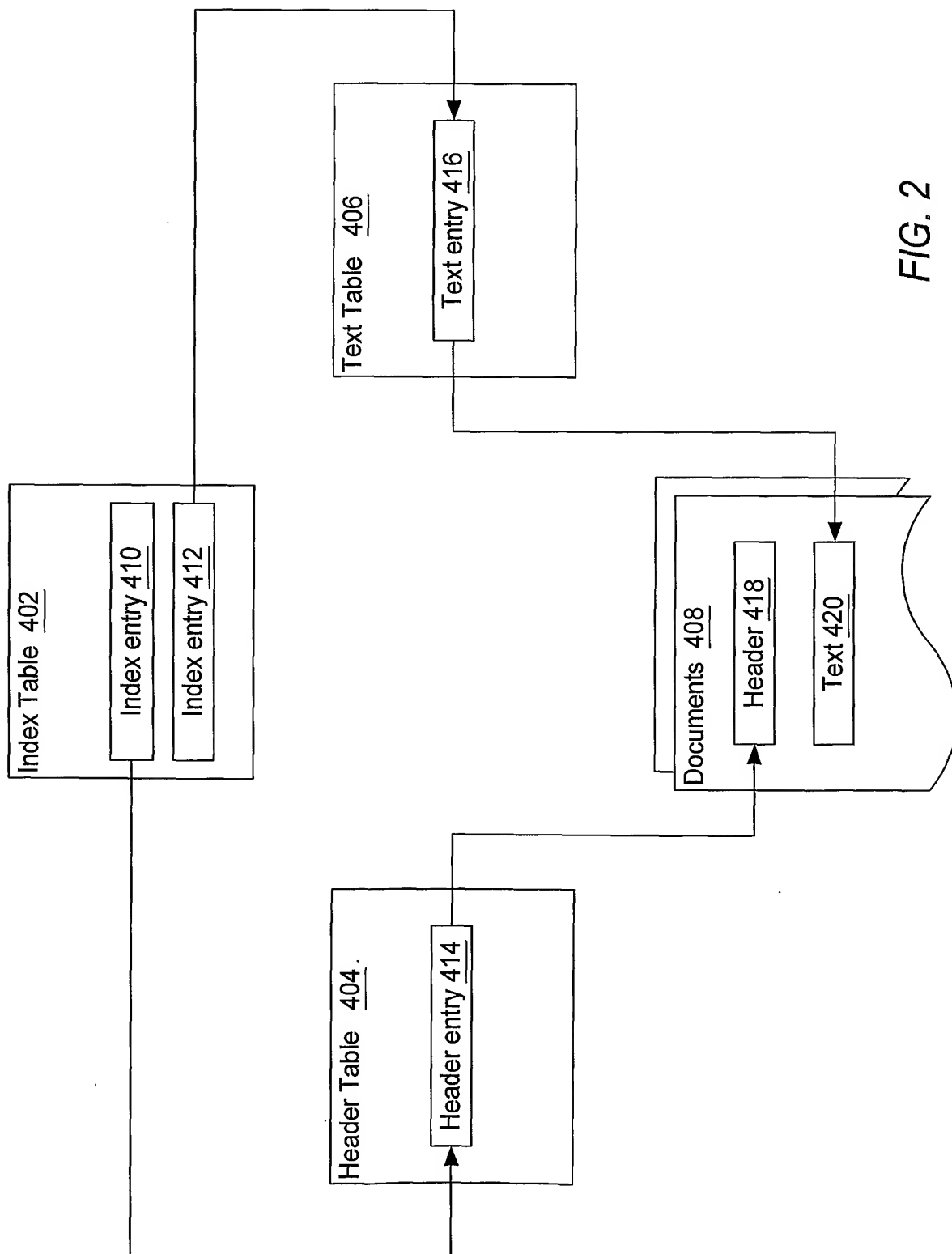


FIG. 2

4 / 39

100 → 102 → 104 → 106 →

OBJECT ID	PARENT ID	BYTE COUNT	NAME
1010000000000	1000000000000	1	< Header 1 >
1010101000000	1010000000000	26	< Header 2 >
1010102000000	1010101000000	925	< Header 3 >
1010201000000	1010102000000	1408	< Header 4 >
....	....	....	....

Header Table

*FIG. 3*

110 → 112 → 114 → 116 →

OBJECT ID	PARENT ID	BYTE COUNT	TEXT
1010100000001	1010100000000	36	< Section 1 Text >
1010100000002	1010100000000	362	< Section 2 Text >
1010101000001	1010101000000	967	< Section 3 Text >
1010102000001	1010102000000	1429	< Section 4 Text >
....	....	....	....

Text Table

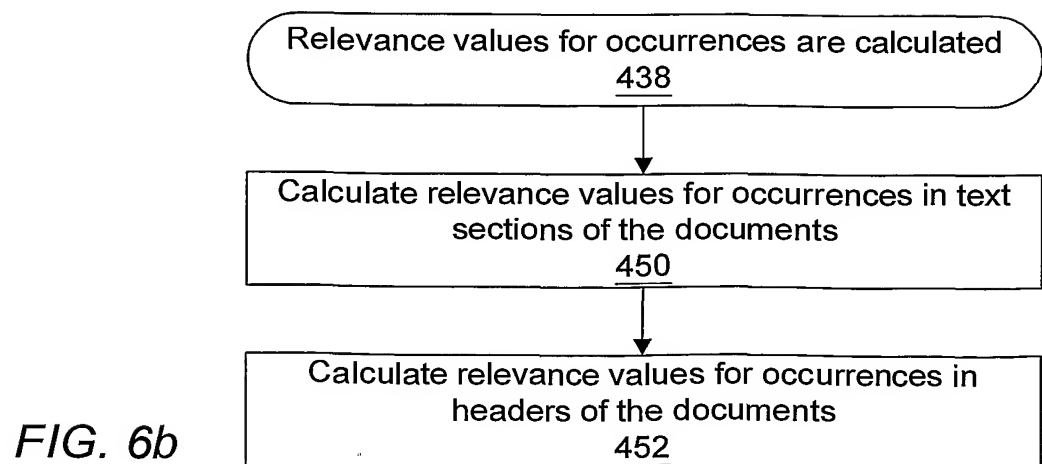
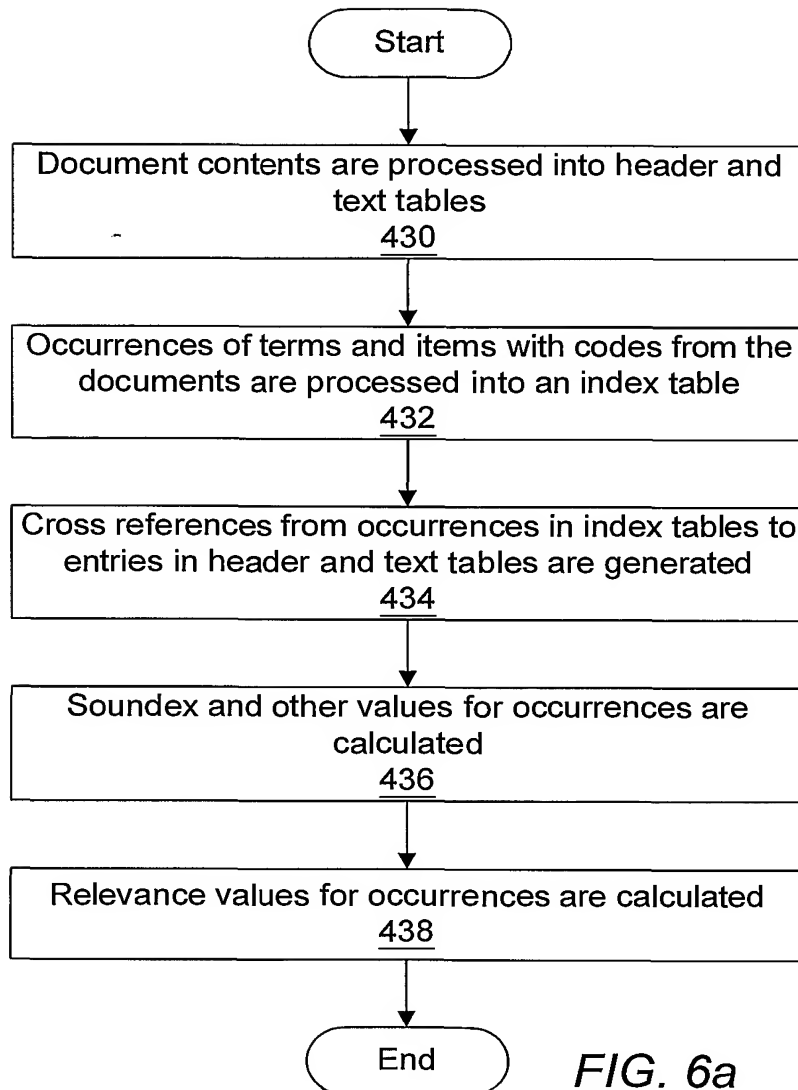
*FIG. 4*

OBJECT ID	WORD	SOUNDEX	POSITION	TOTAL WORDS	WORD COUNT	RELEVANCE
1010100000001	System	S235	5	54	0	0.31
1010100000001	System	S235	9	54	0	0.28
1010100000002	Anatomy	A535	15	86	0	0.28
1010100000002	Body	0000	22	86	0	0.25
1010100000002	Consultation	C524	51	86	0	0.14
1010100000000	Consultation	C524	1	1	1	1.0
1010200000000	Anatomy	A535	9	3	1	0.55
1010300000000	Anatomy	A535	2	5	1	0.58
1010101000000	<Code 1>	0000	2	3	1	0.62
1010300000000	<Code 2>	0000	1	5	1	0.62
1010100000001	<Code 3>	0000	1	54	0	0.33
1010100000002	<Code 4>	0000	86	86	0	0.01
....	....	....	....	....	....	....

Index Table

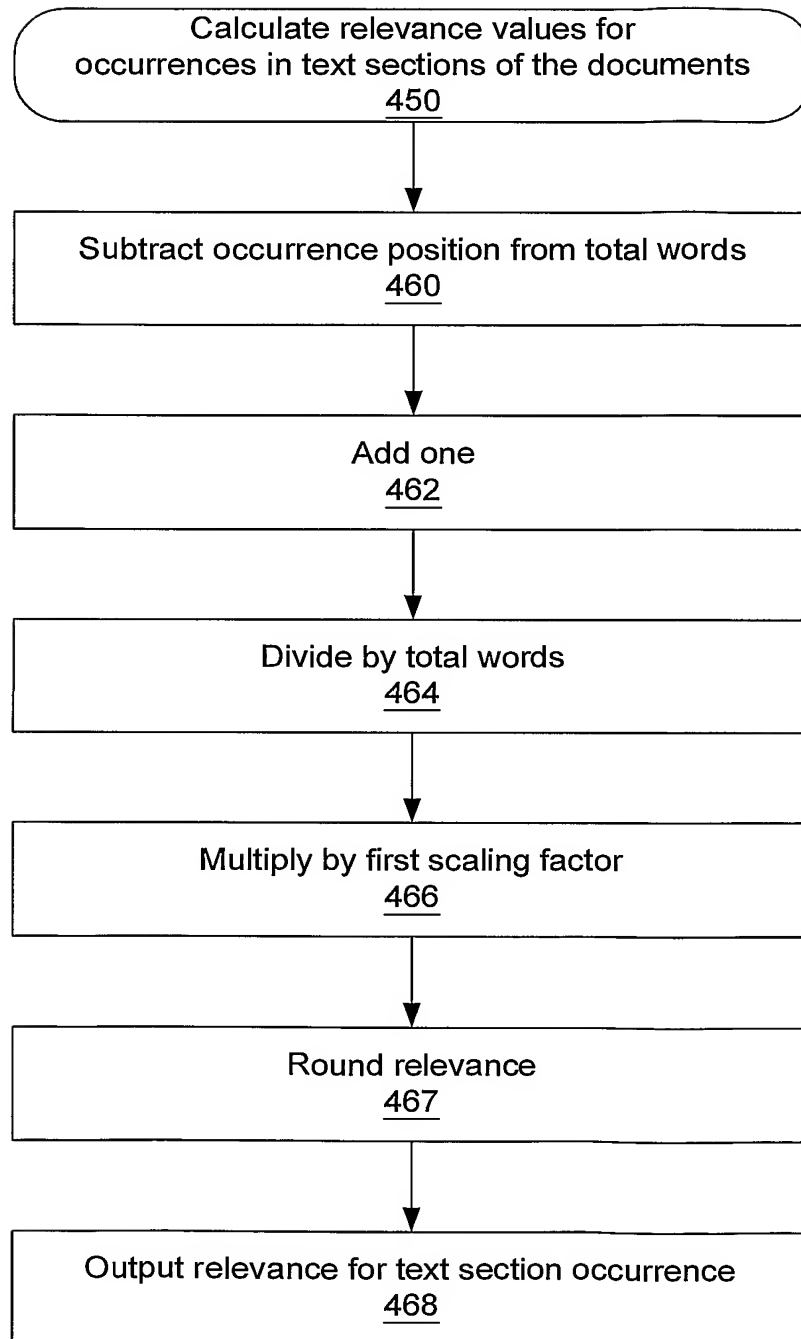
FIG. 5

6 / 39

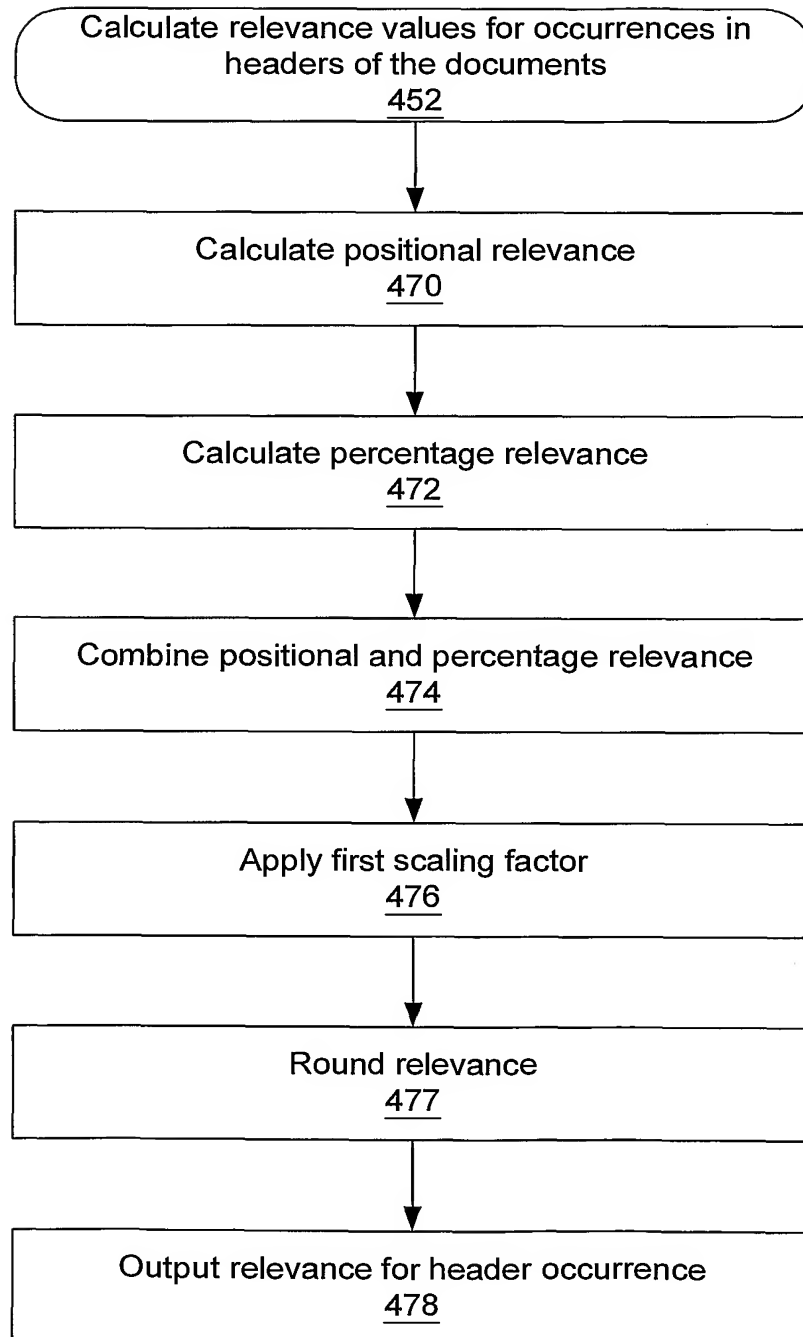




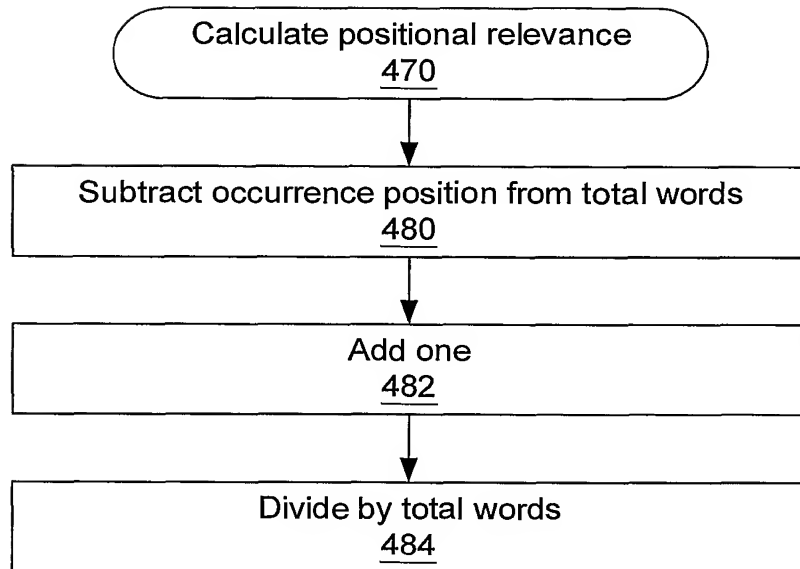
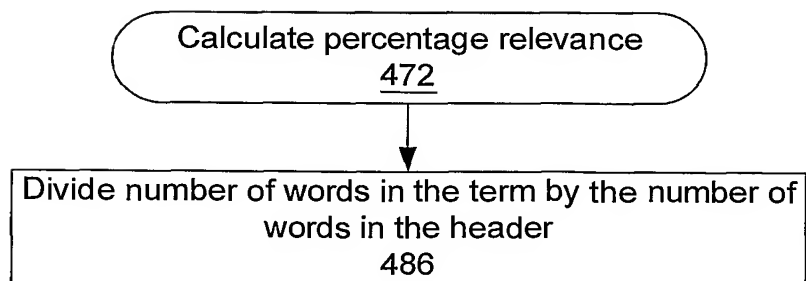
7 / 39

*FIG. 6c*

8 / 39

*FIG. 6d*

9 / 39

*FIG. 6e**FIG. 6f*

10 / 39

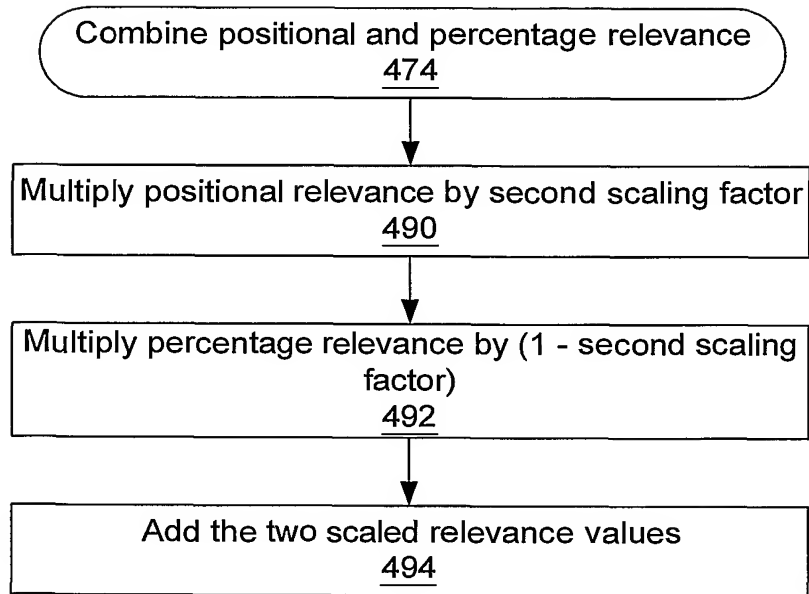


FIG. 6g

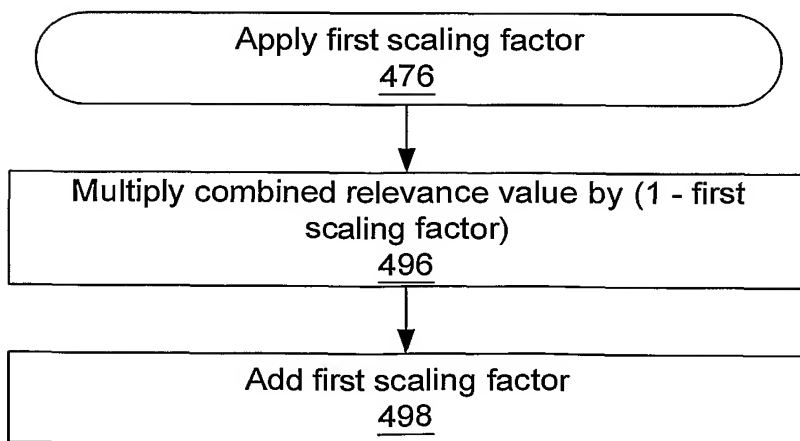
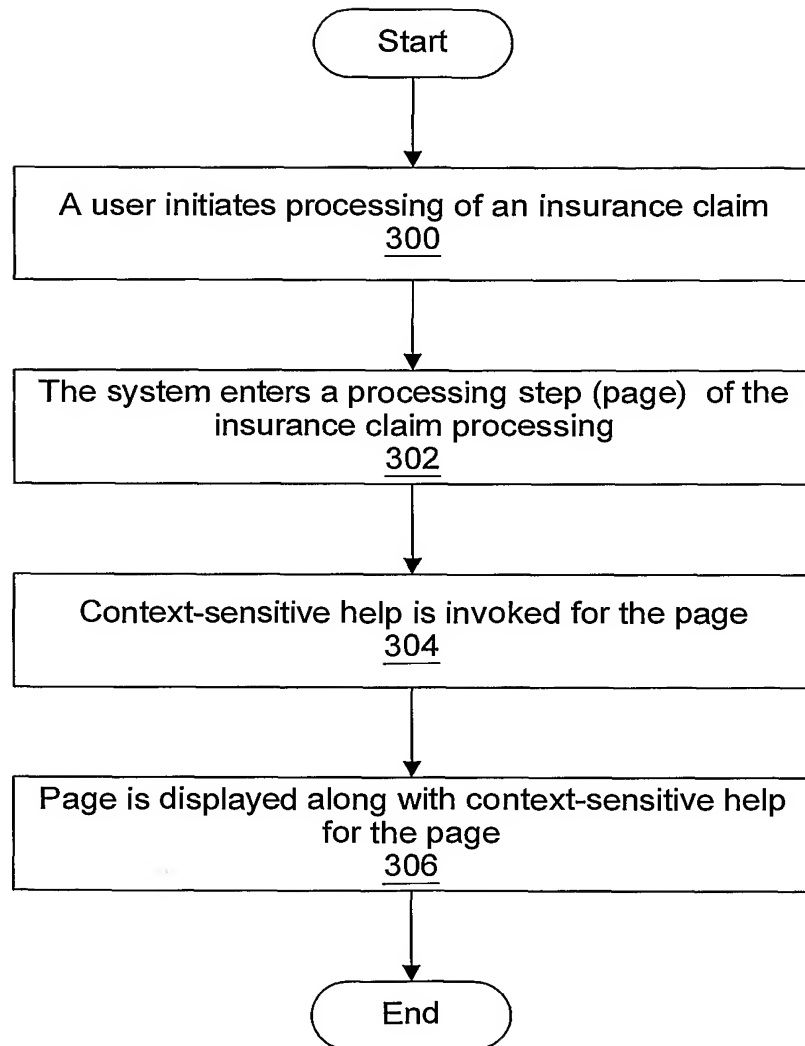


FIG. 6h

11 / 39

*FIG. 7a*

12 / 39

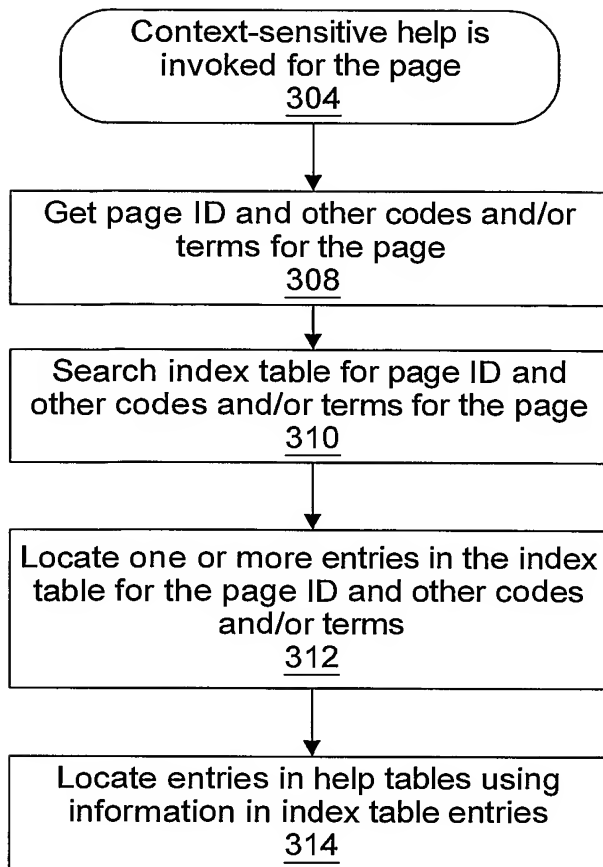


FIG. 7b

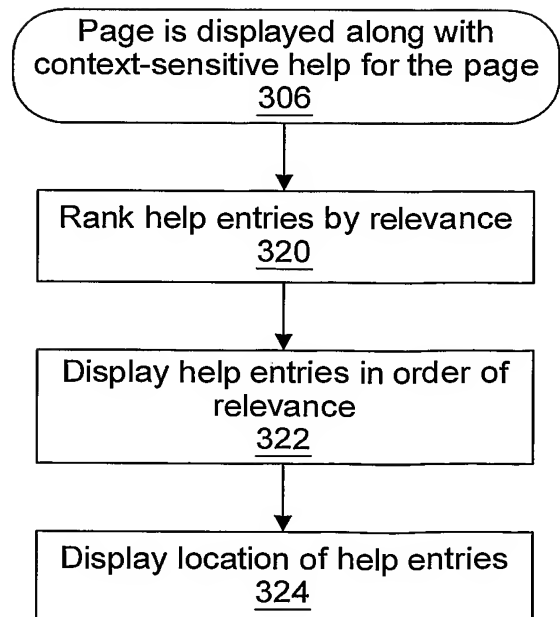


FIG. 7c

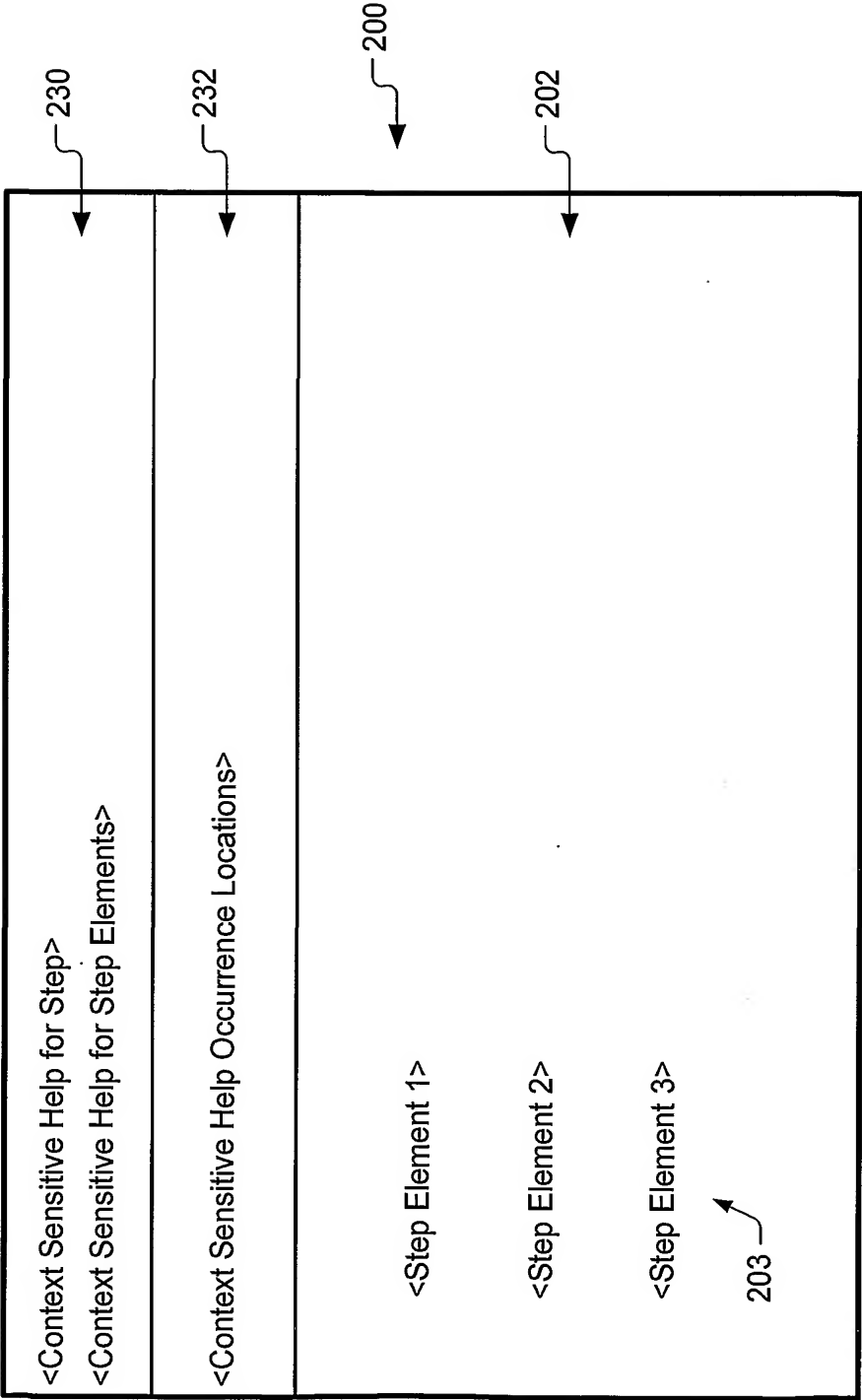
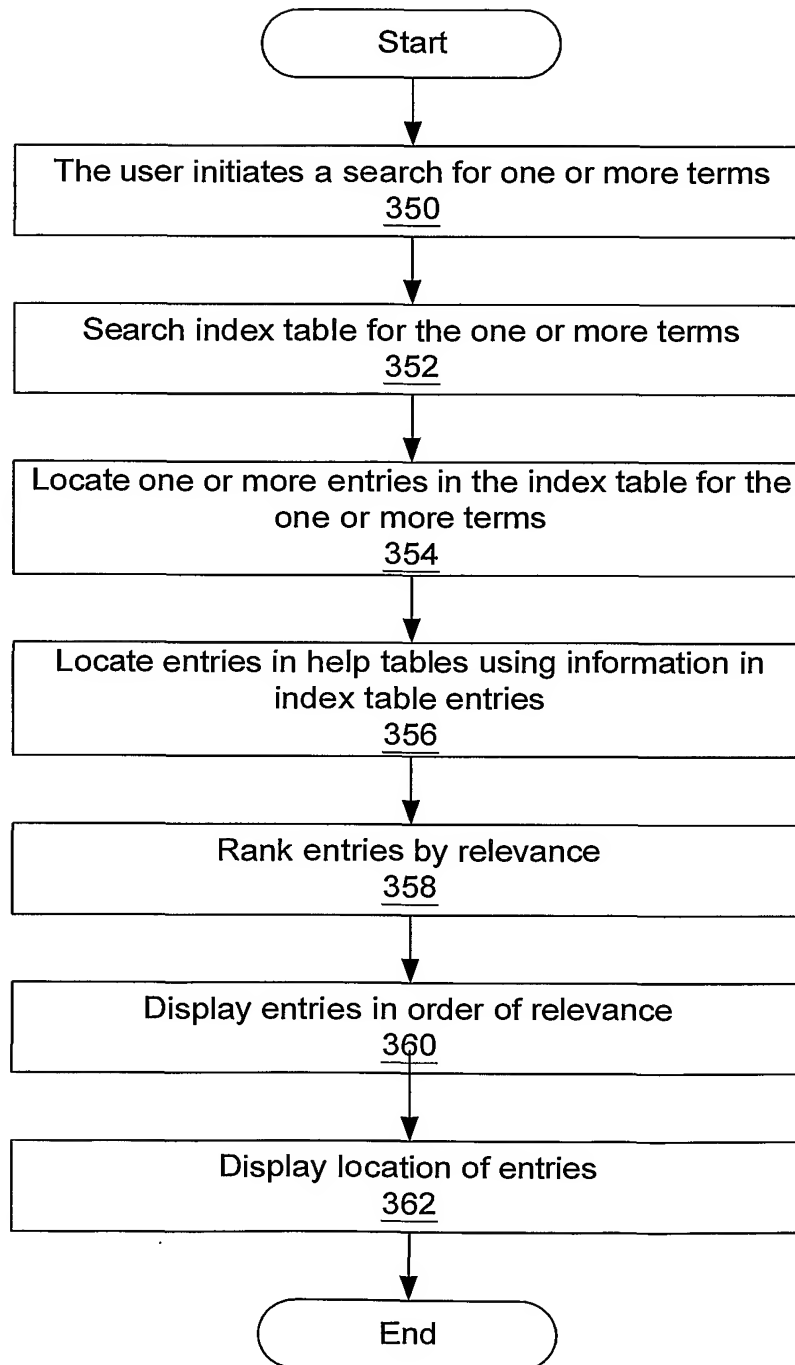


FIG. 8

14 / 39

*FIG. 9*



15 / 39

210 208 212 214 216 218 204 206 200 202

Reference System

Search Text: cuboid  
 CUBOID  
 Cuneiforms and Cuboid  
 Trauma  
 CUNEIFORM ARCH  
 CUNEIFORM

Word 15 Found

Chapter= Words  
 Glossary CUBOID  
 Trauma CUBOID  
 Glossary CUBOID  
 Glossary CUBOID  
 Glossary CUBOID  
 More

Rel  
 1  
 1  
 1  
 1  
 1  
 1

More Select - 'E' to Expand

Chapter Headers -  
 Chapter 24 Medical Glossary  
 Chapter 24 Injury Codes by  
 Chapter 24 Injury Codes by  
 Context Sensitive Help  
 Claim Number

Body Part  
 Injury Description

CLAIM NUMBER  
 Claim Number:  
 Enter the Claim Number.  
 Claimant Number:  
 Since multiple Claimants are often involved, you must enter the Claimant Number to indicate the specific Claimant you want to evaluate.

Search returned 16 entries for CUBOID  
 PF1=Help PF3=Exit PF7=PageUp PF8=PageDown PF9=Show/Hide Search

FIG. 10

The screenshot displays a software interface titled "Reference System". At the top left is a menu bar with options: "Chapter Headers - 'S' to Select - 'E' to Expand", "Chapter 22 Medical Glossary", "Chapter 23 Injury Codes byd", "Chapter 24 Injury Codes byd", "Context Sensitive Help", and "Claim Number". Below the menu is a table with two columns: "CLAIM NUMBER" and "Injury Description". The table contains one row with the value "206" in the first column and "Injury Description" in the second. To the right of the table is a large text area. It contains the following text: "Claim Number:", "Enter the Claim Number.", "Claimant Number:", "Since multiple Claimants are often involved, you must enter the Claimant Number to indicate the specific Claimant you want to evaluate.", and "Injury Description:". At the bottom of the interface is a status bar with the text: "Search returned 16 entries for CUN01P", "PF1=Help PF3=Exit PF7=PageUp PF8=PageDown PF9=Show/Hide Search".

CLAIM NUMBER	Injury Description
206	Injury Description

Claim Number:  
Enter the Claim Number.

Claimant Number:  
Since multiple Claimants are often involved, you must enter the Claimant Number to indicate the specific Claimant you want to evaluate.

Injury Description:

Search returned 16 entries for CUN01P  
PF1=Help PF3=Exit PF7=PageUp PF8=PageDown PF9=Show/Hide Search

FIG. 11

17 / 39

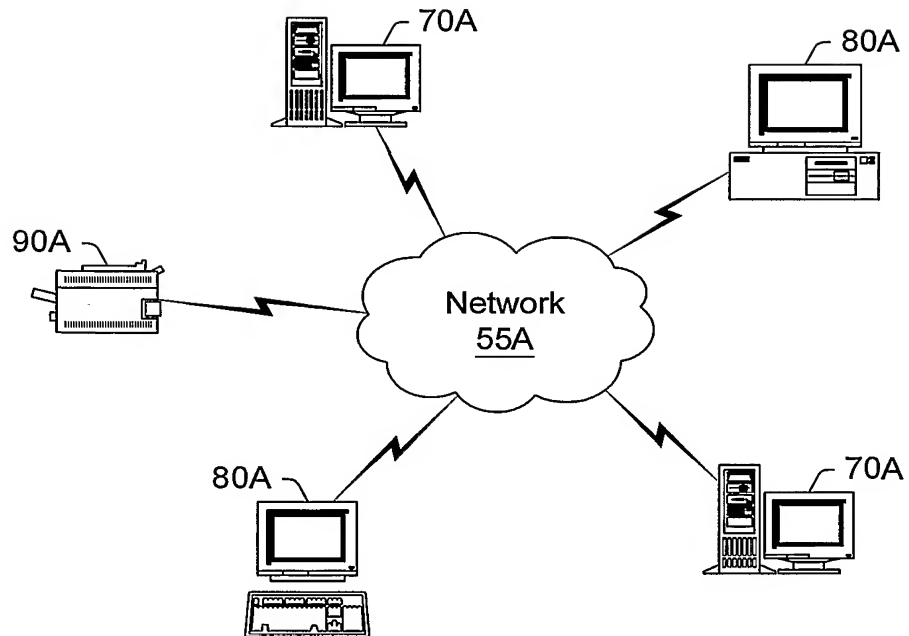


FIG. 1d

18 / 39

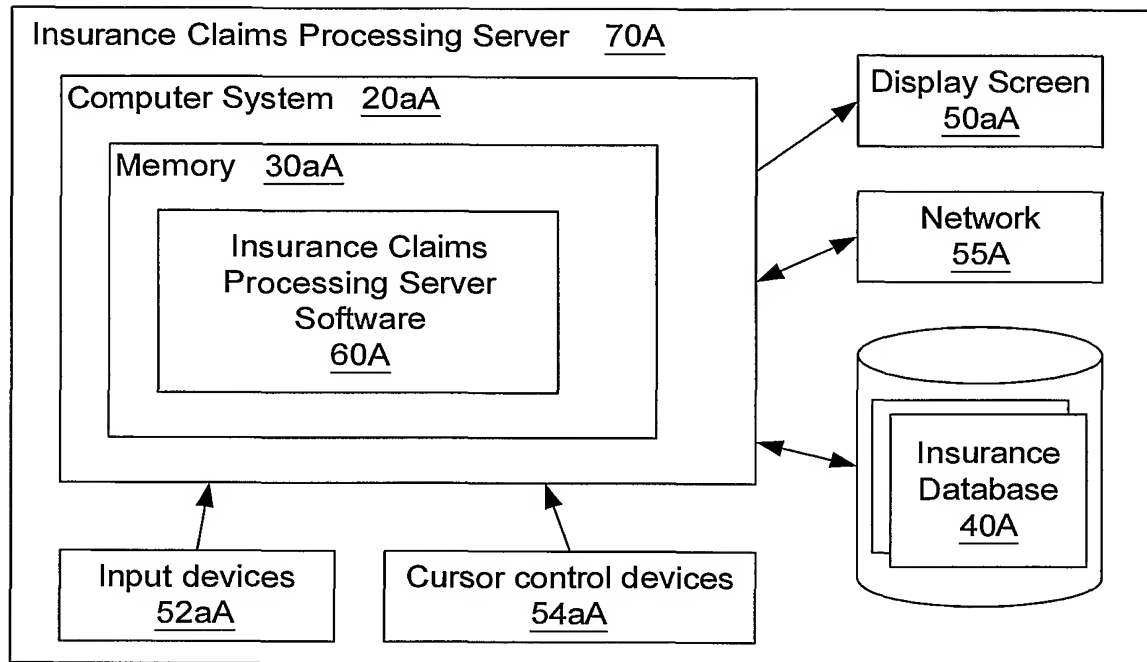


FIG. 2aA

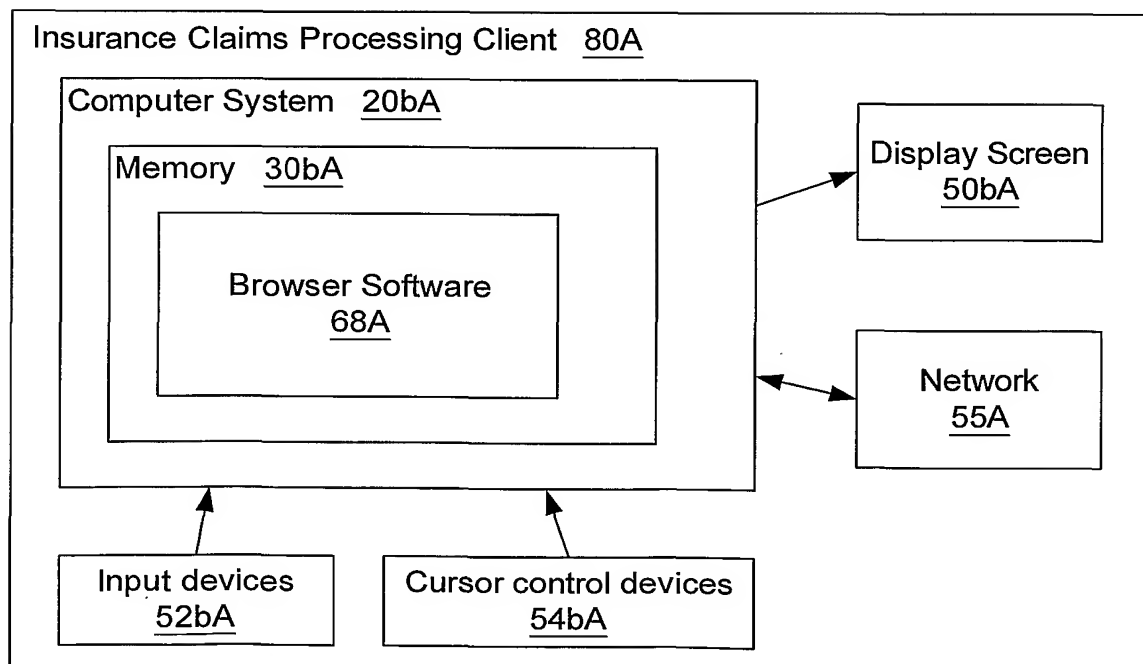


FIG. 2bA

19 / 39

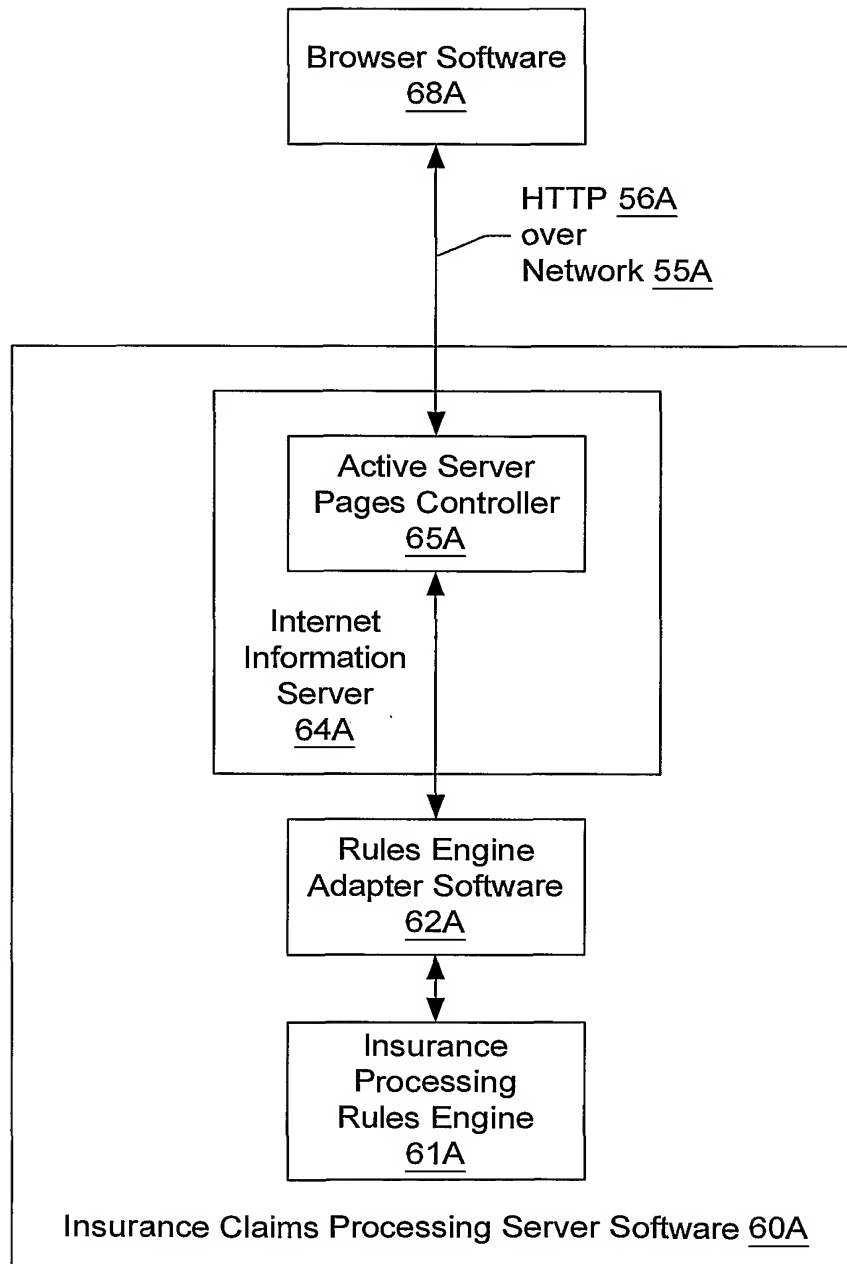


FIG. 3aA

20 / 39

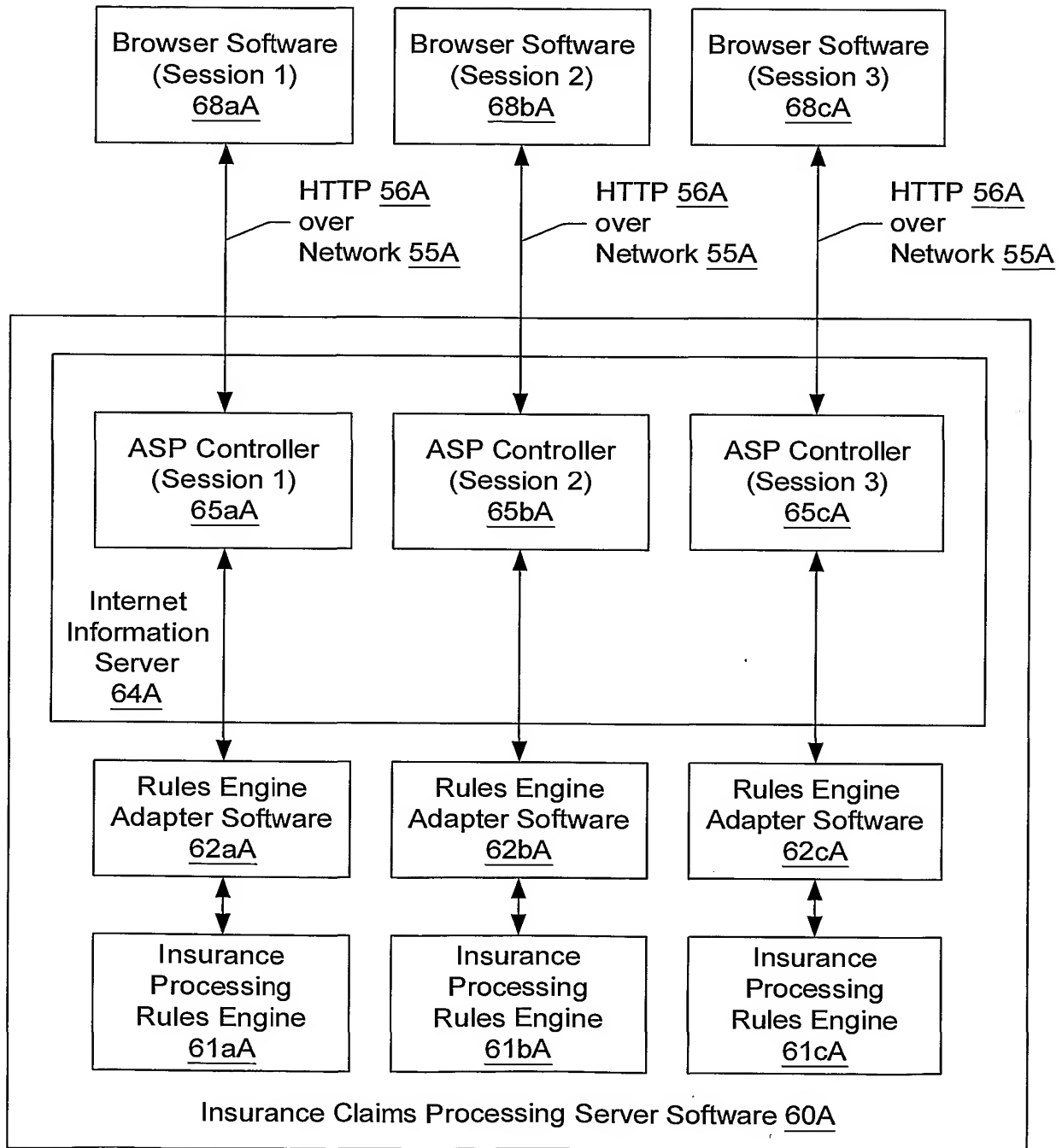


FIG. 3bA

21 / 39

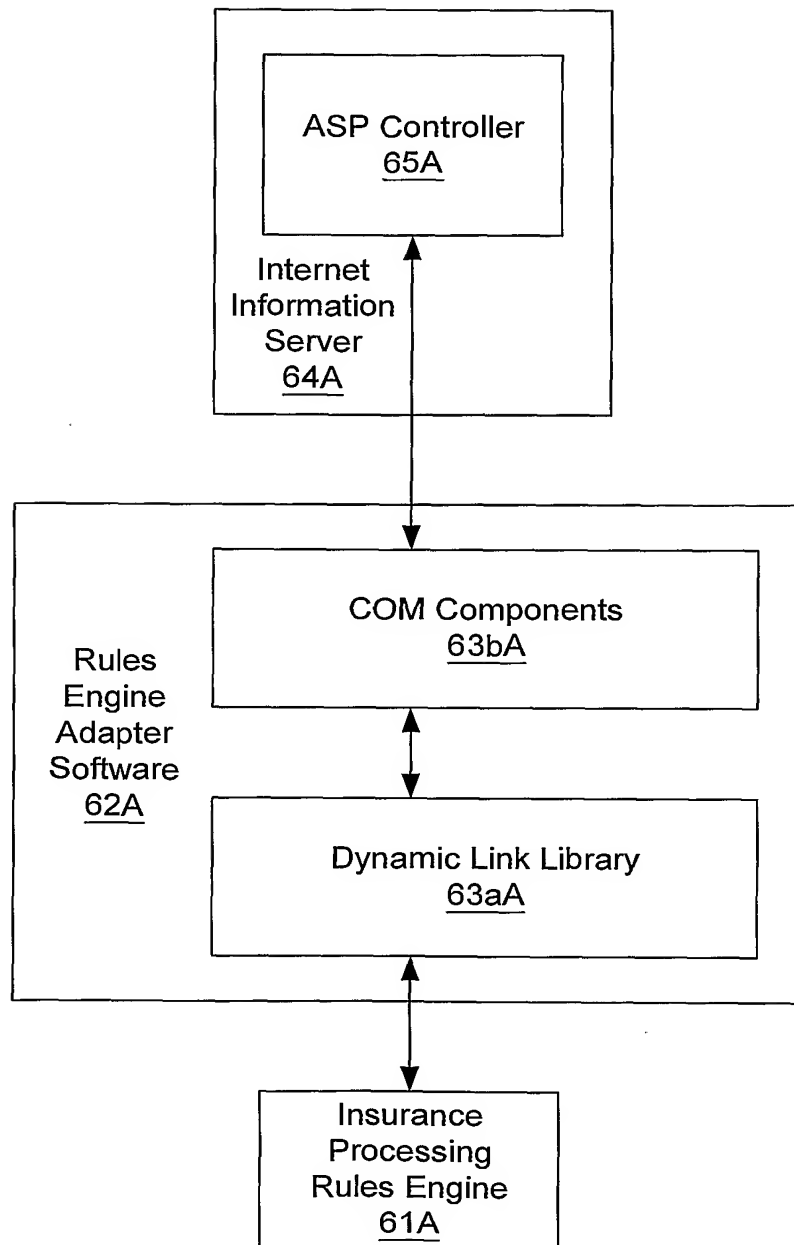


FIG. 4A

22 / 39

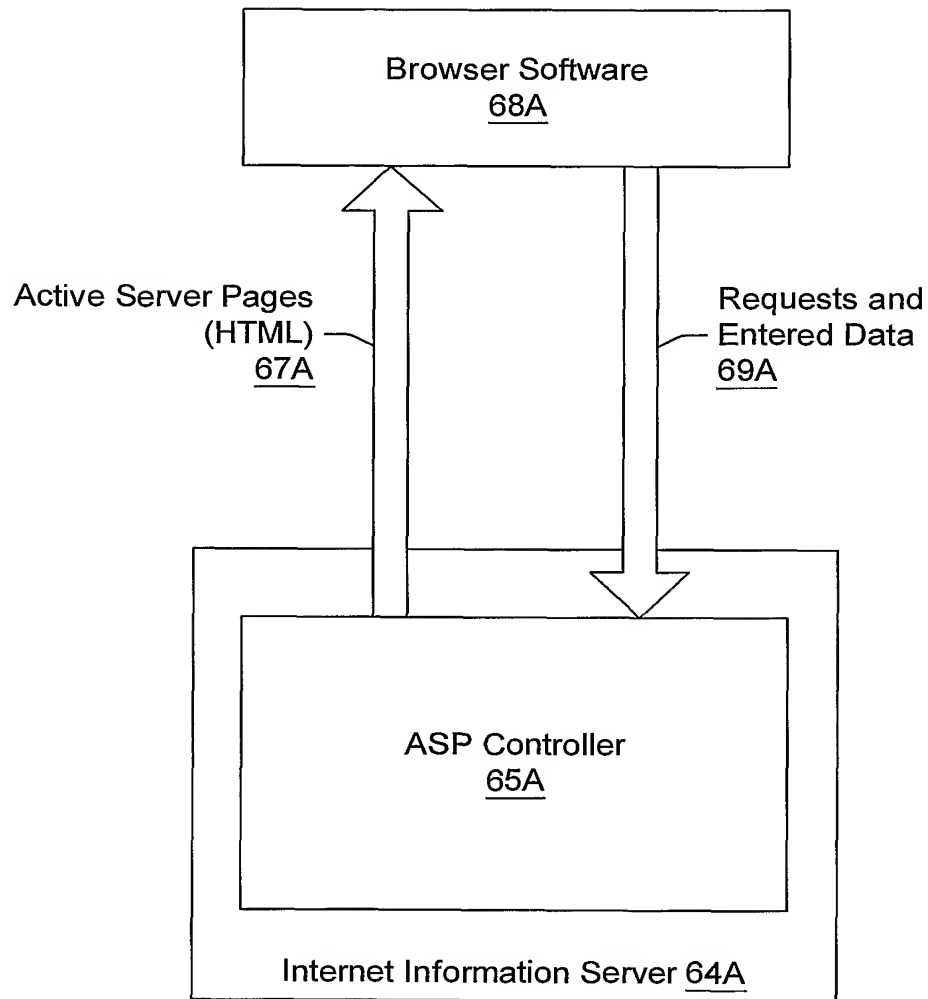


FIG. 5A



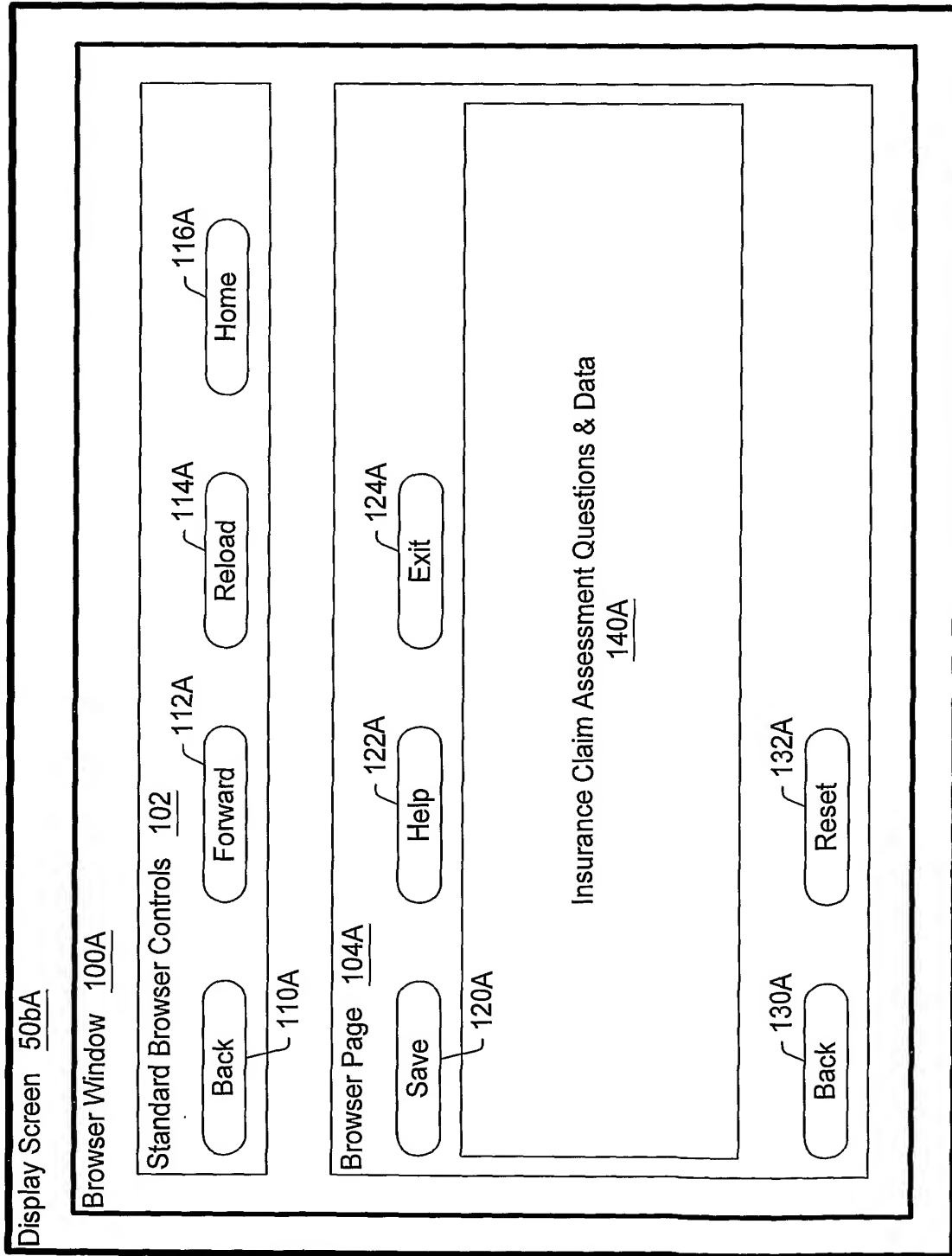
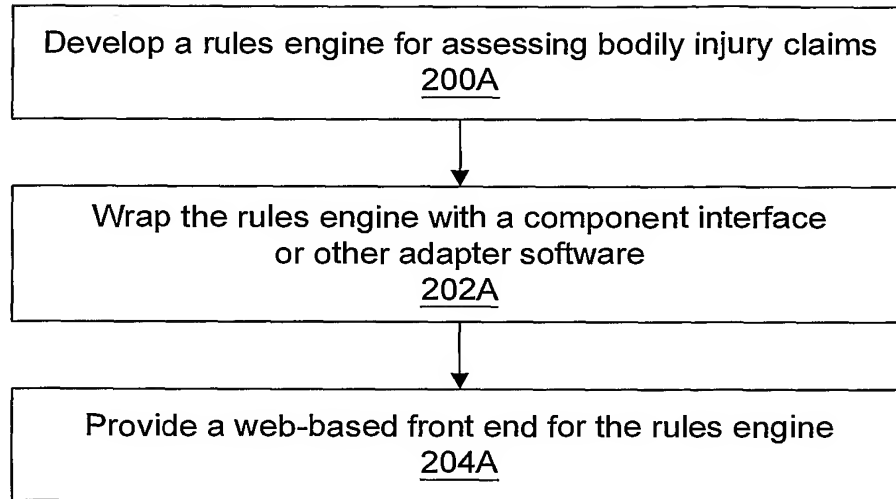
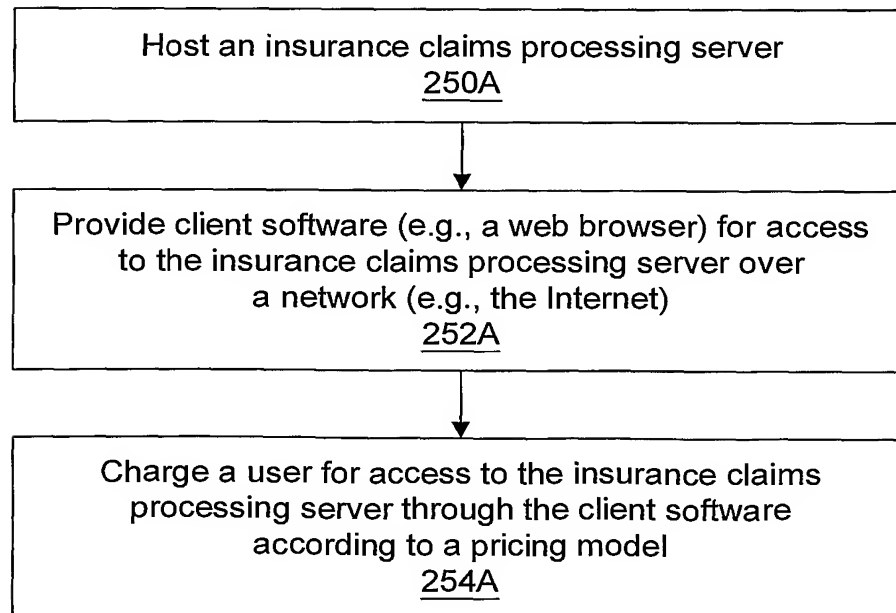


FIG. 6A

24 / 39

*FIG. 7A**FIG. 8A*

25 / 39

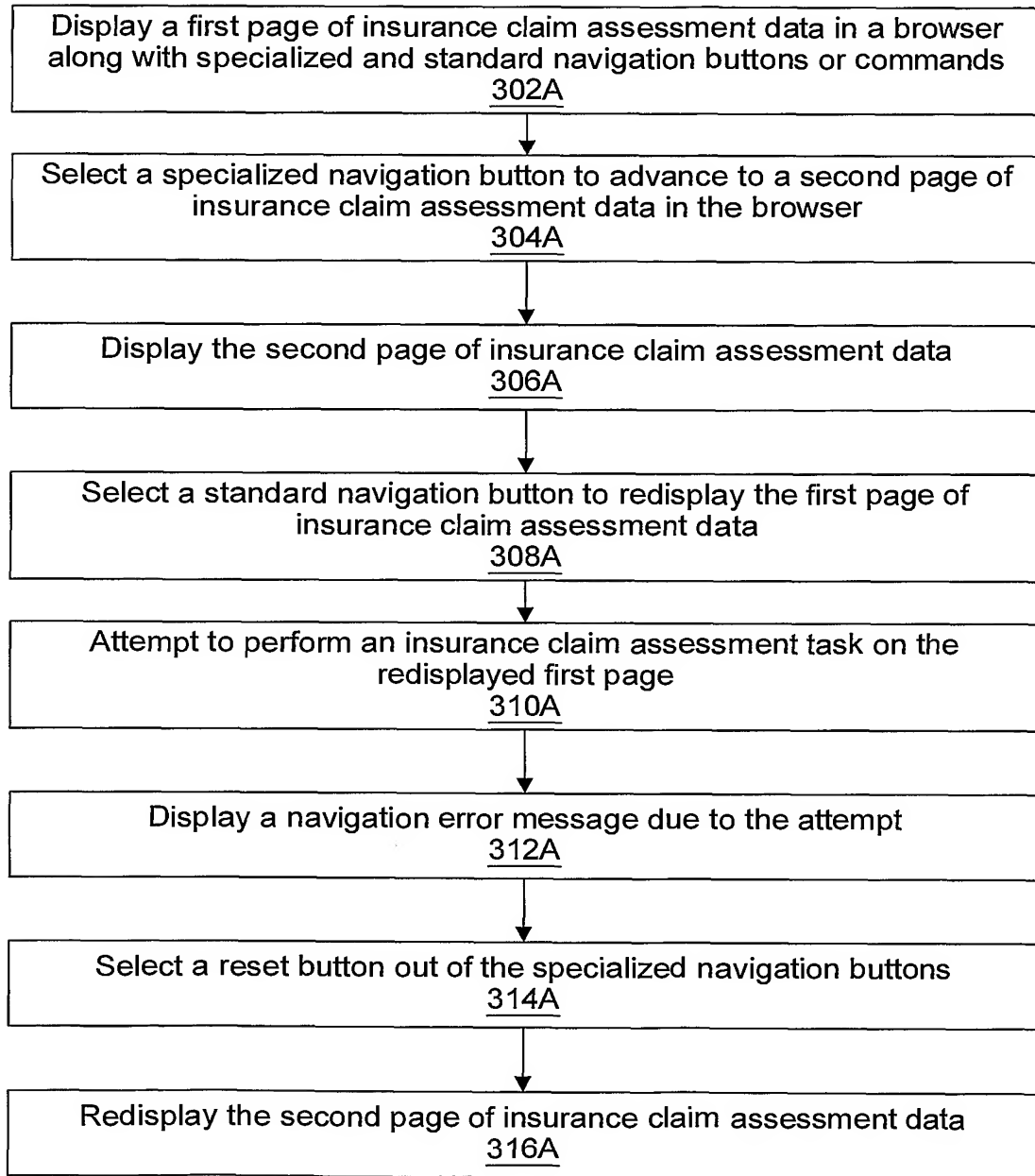


FIG. 9A

26 / 39

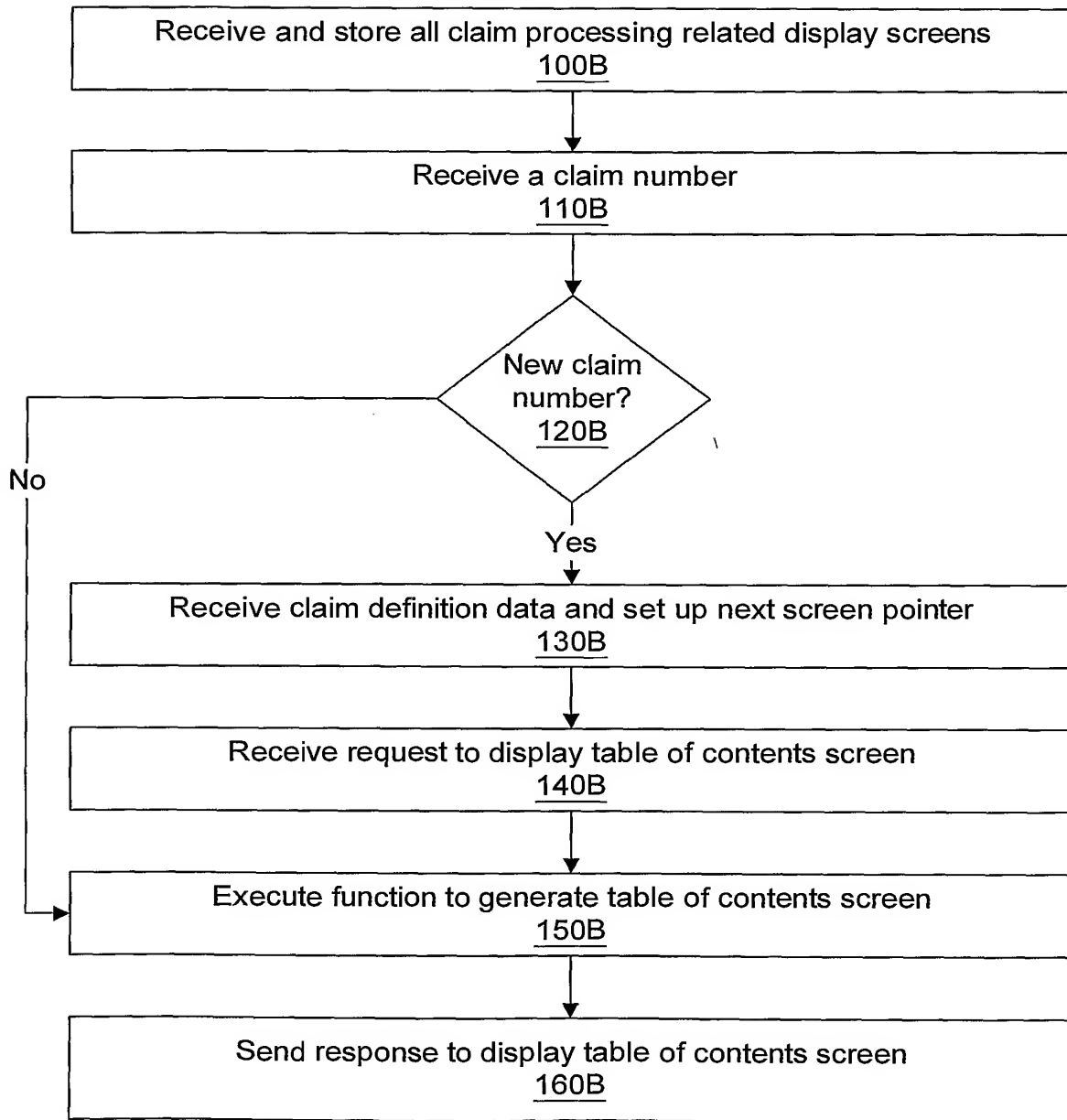
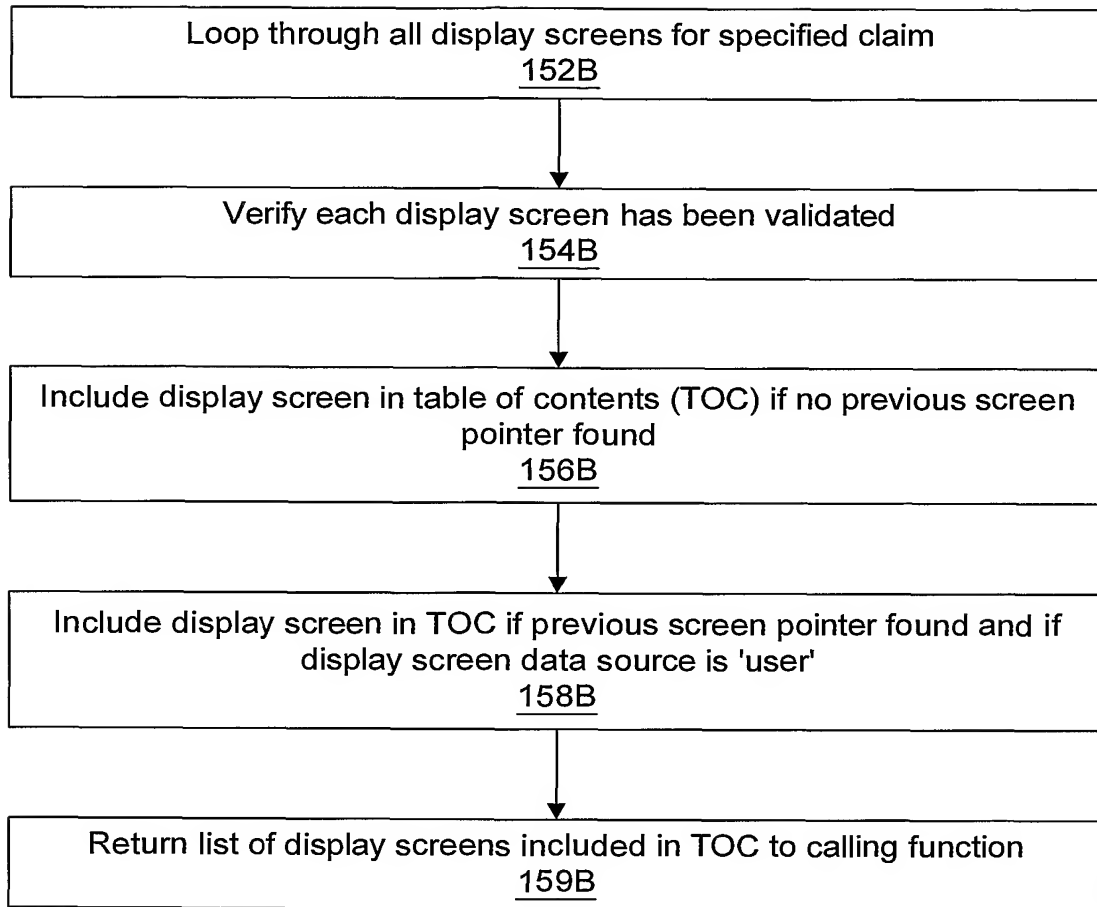
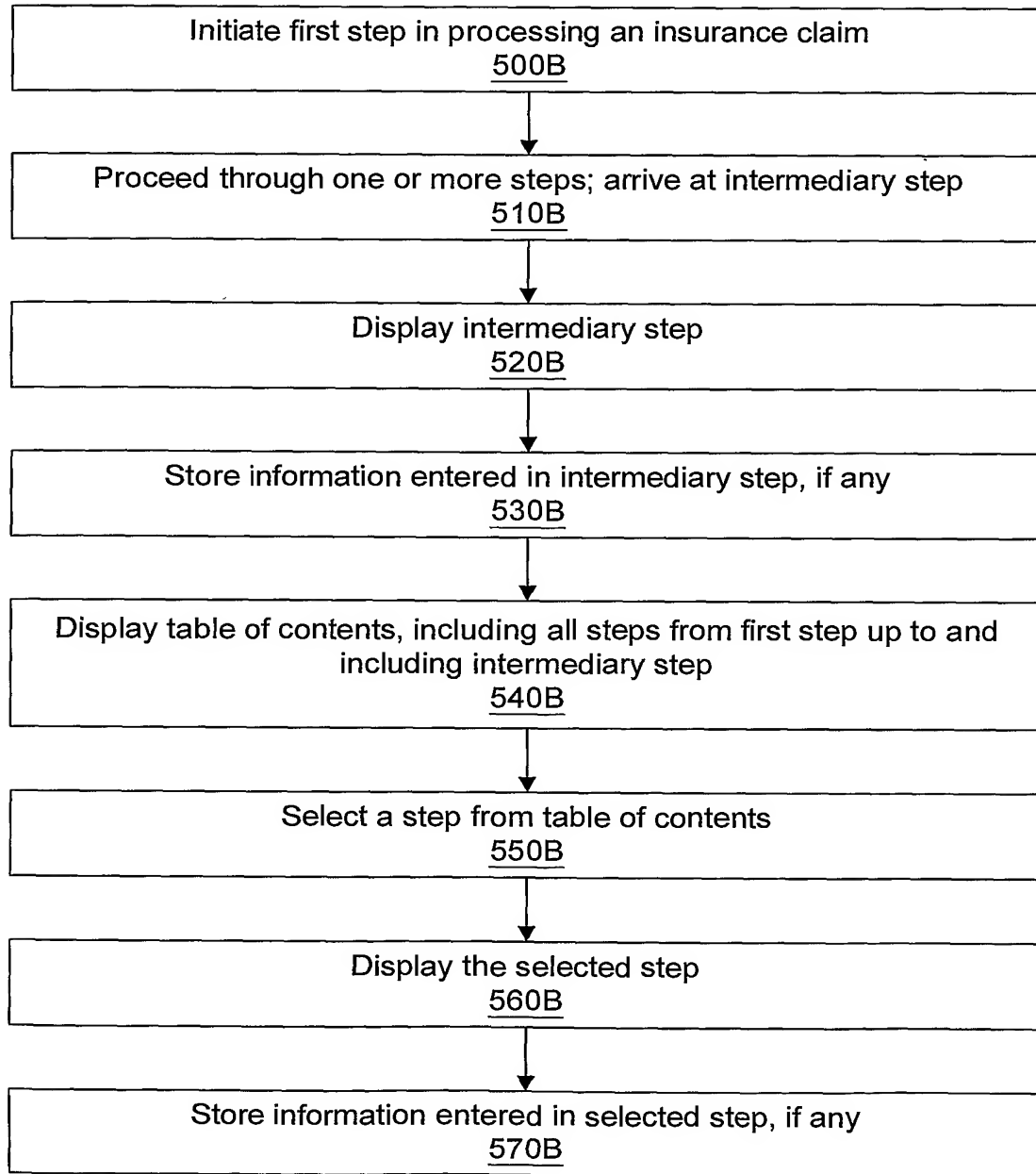


FIG. 2B

27 / 39

*FIG. 3B*

28 / 39

*FIG. 4B*

29 / 39

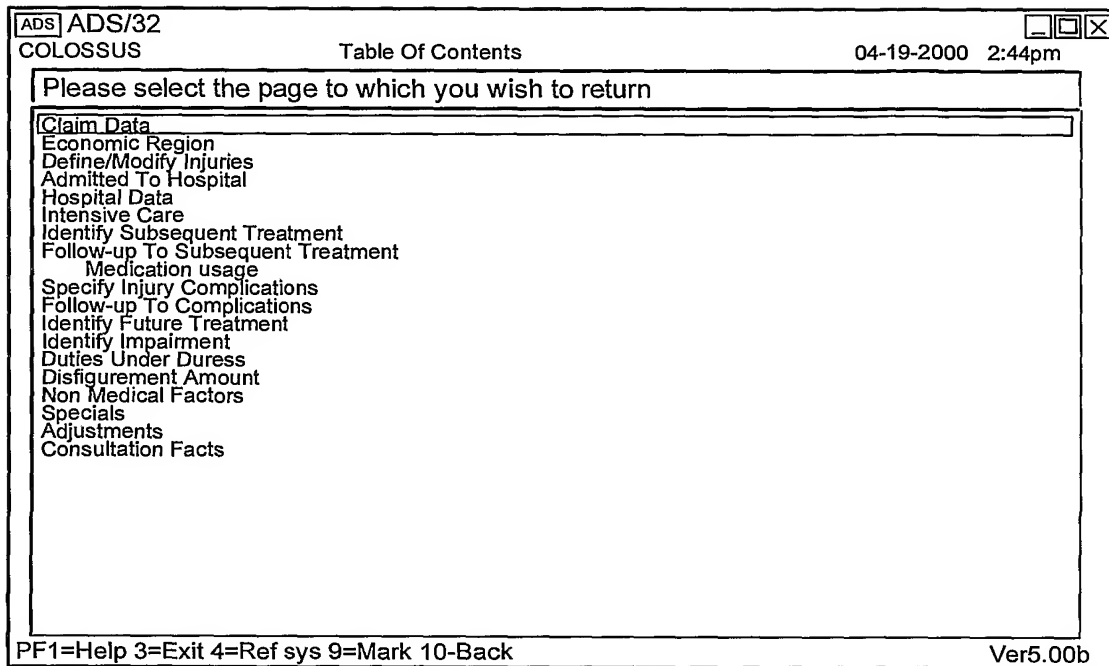


FIG. 5B

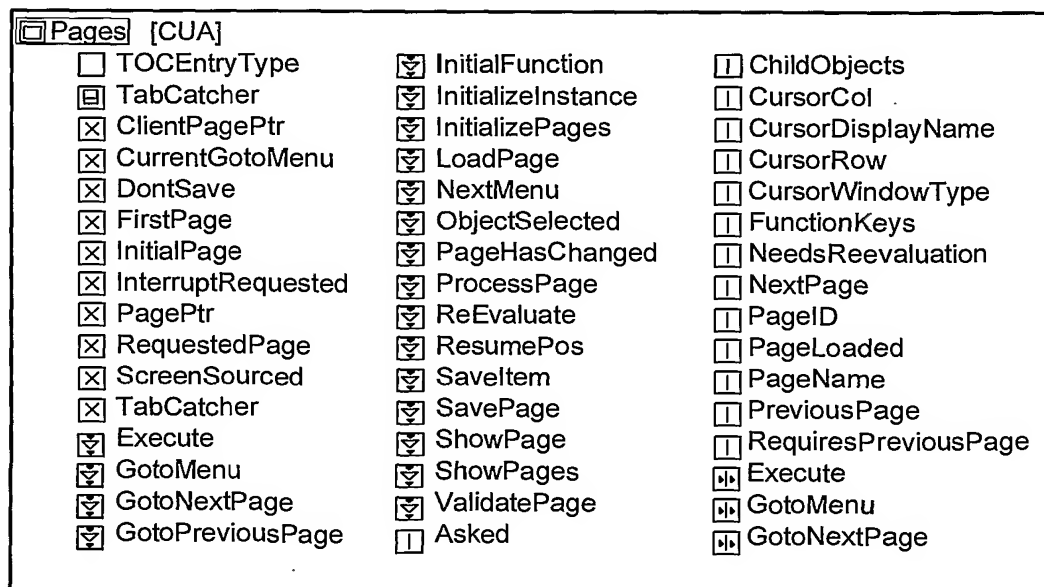


FIG. 6B

30 / 39

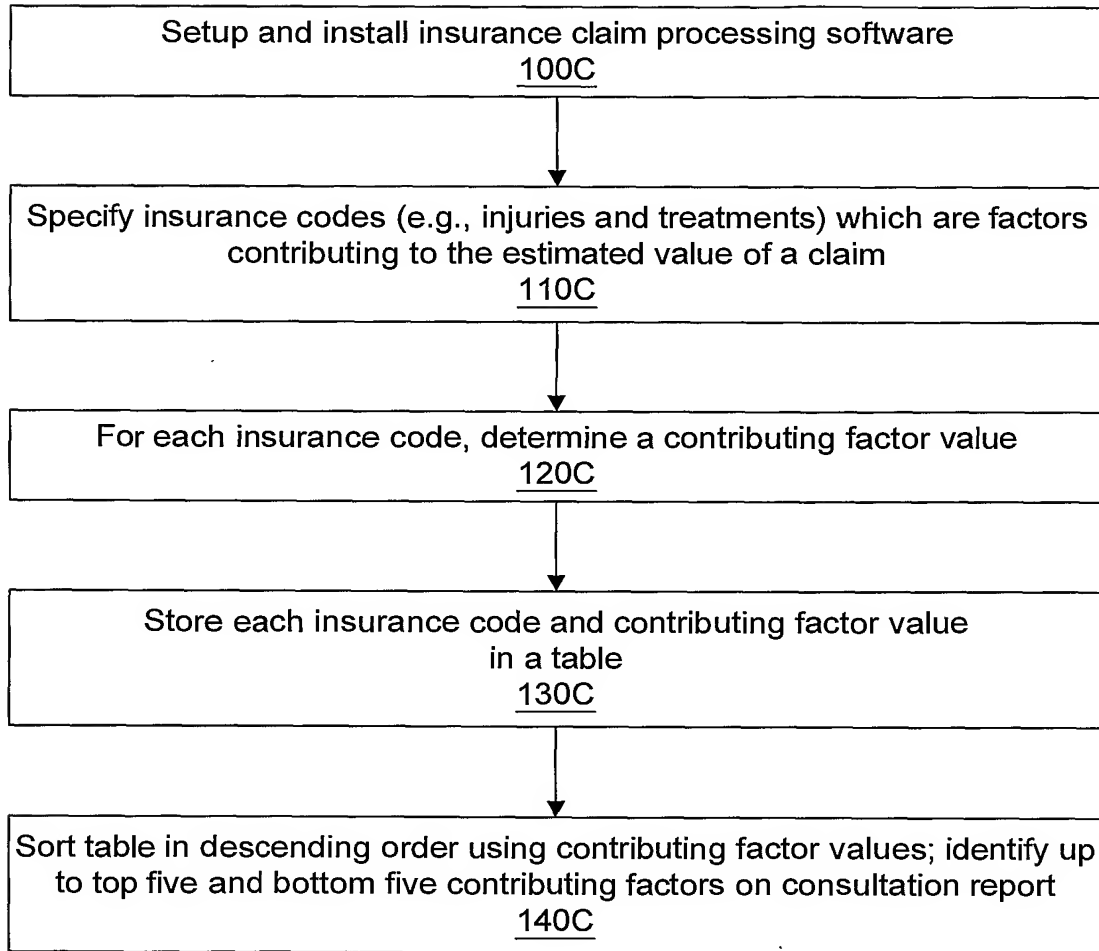


FIG. 2C

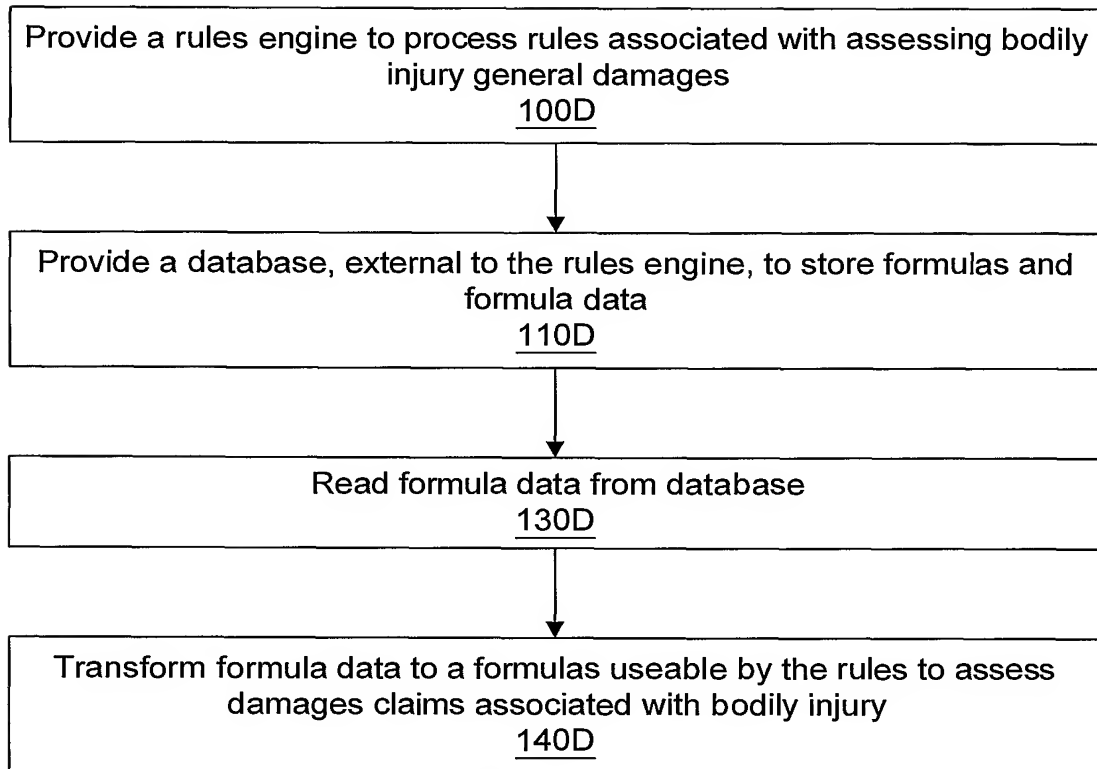


31 / 39

Injury or Treatment Code	Contributing Factor Value
CF001	500
CF002	750
CFNNN	1200

FIG. 3C

32 / 39

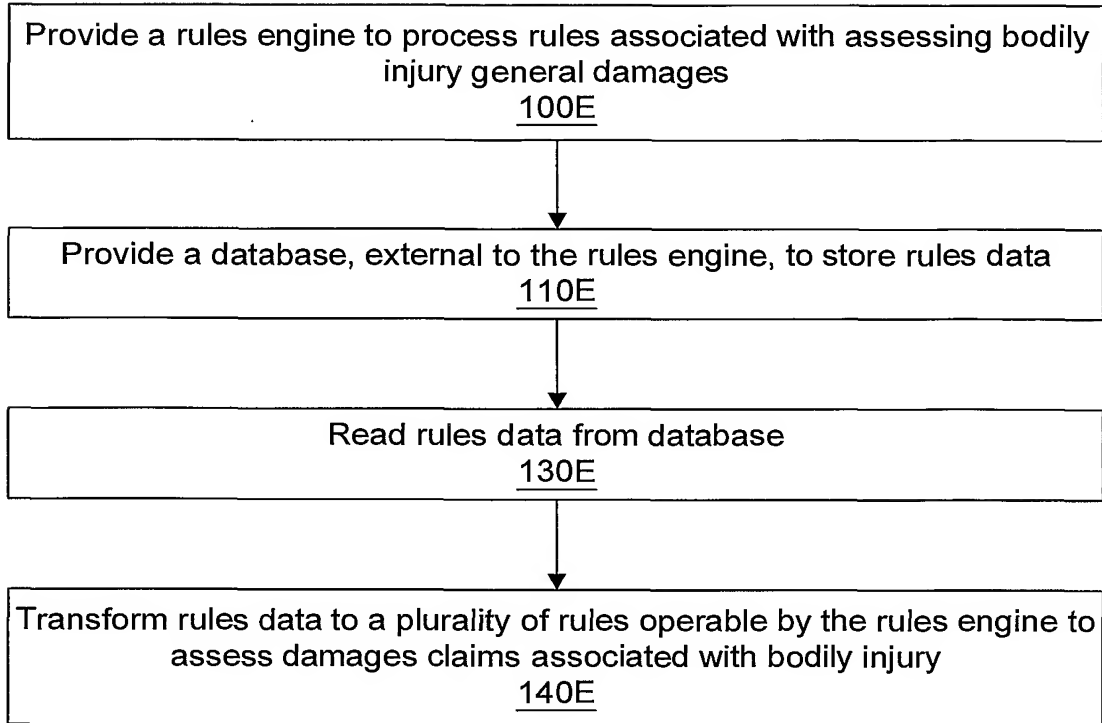
*FIG. 2D*

33 / 39

300D FormulaID	310D SequenceNo	320D Operation	330D Value
FID000	1	*	100
FID000	2	>	500
FID000	3	-	1200
FID001	1	+	50
FIDNNN	1	*	5
FIDNNN	2	=>	1000

FIG. 3D

34 / 39

*FIG. 2E*

35 / 39

300E	310E	320E	330E
Injury_Code	Adj_Amount	Rule_Name	Rule_style
IC000	100	RN000	RS000
IC001	50000	RN001	RS001
ICNNN	15000	RNNNN	RSNNN

FIG. 3aE

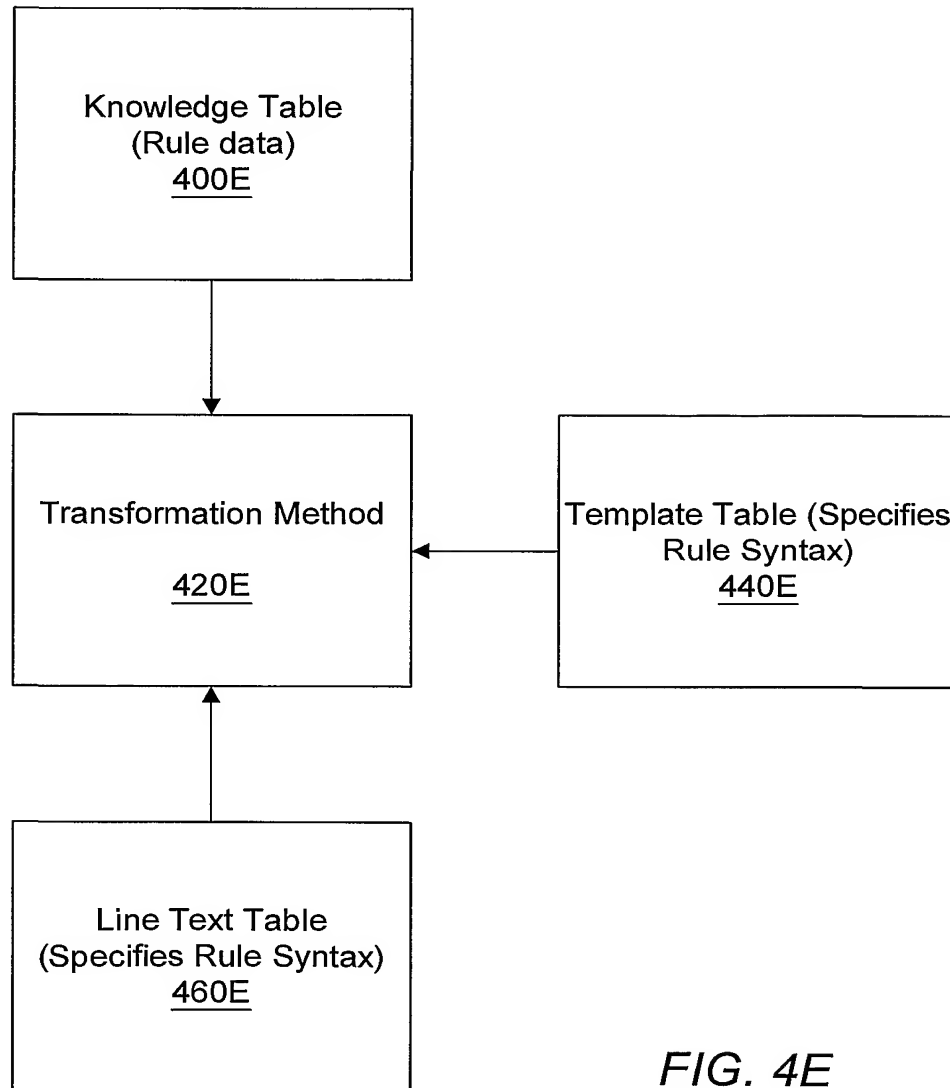
350E	320E	330E	360E
Statename	Rule_Name	Rule_style	Line_textID
LOC000	RN000	RS000	LT000
LOC001	RN001	RS001	LT001
LOCNNN	RNNNN	RSNNN	LTNNN

FIG. 3bE

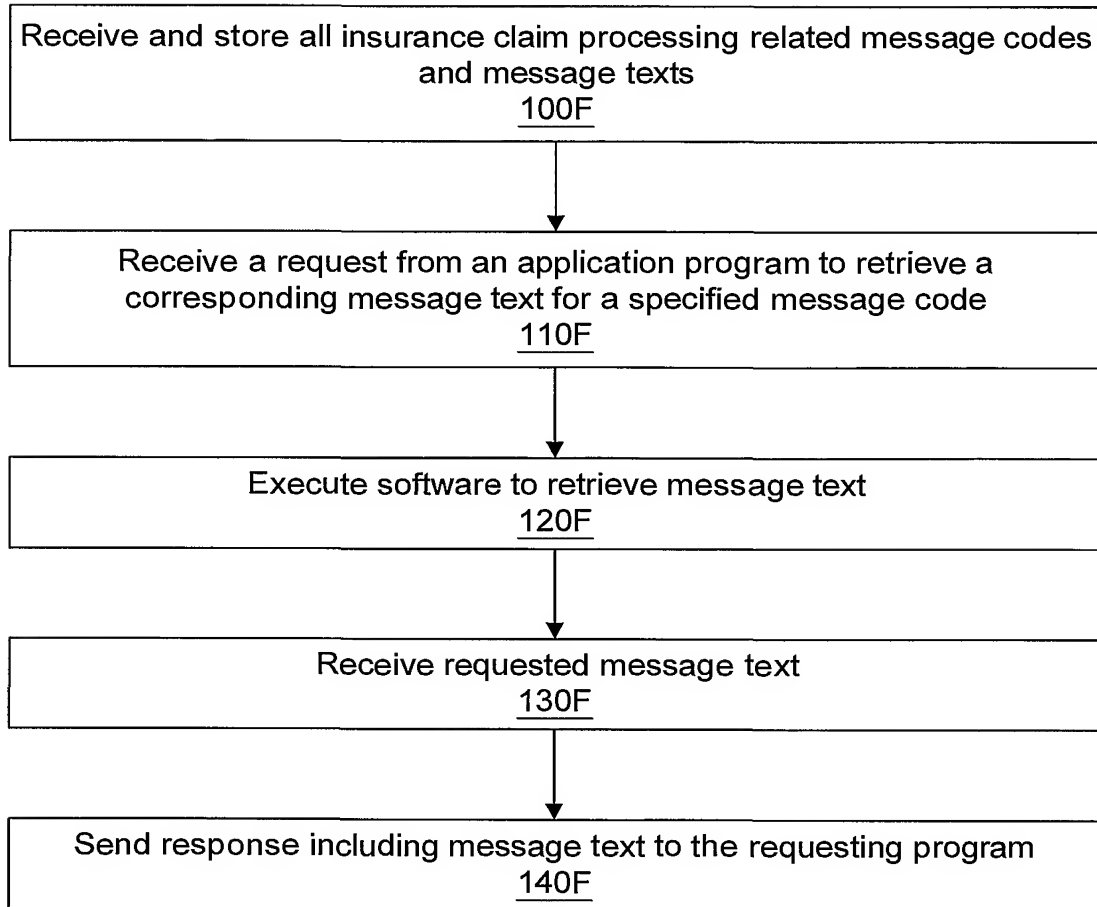
360E	370E	330E	350E
Line_textID	Line_text	Rule_style	Statename
LT000	Code = '20'	RS000	LOC000
LTNNN	Registry(1)	RSNNN	LOCNNN

FIG. 3cE

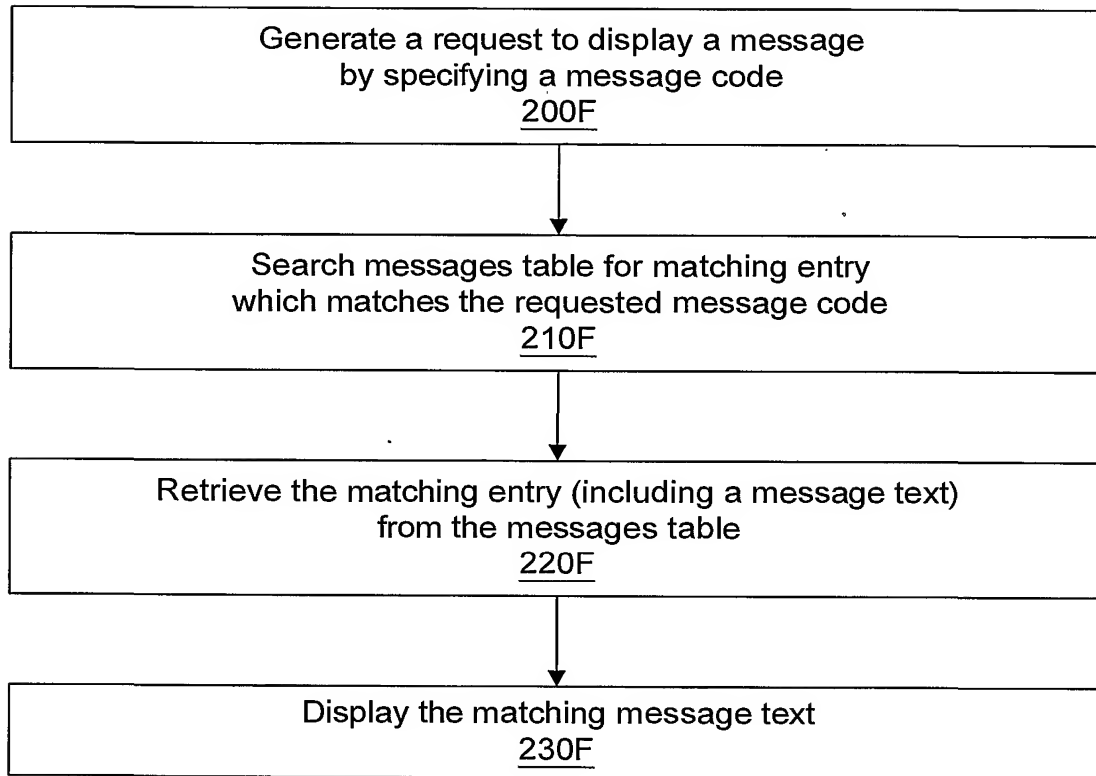
36 / 39

*FIG. 4E*

37 / 39

*FIG. 2F*

38 / 39

*FIG. 3F*



300F

310F

320F

Message Section	Message Code	Message Text
AA	A01	'Birthdate (mm/dd/yy):'
AB	A02	'ERROR - Integer value must be between 0 and 9.'
ZZ	Z99	'Select colour:'

FIG. 4F

# PATENT COOPERATION TREATY

# PCT

## DECLARATION OF NON-ESTABLISHMENT OF INTERNATIONAL SEARCH REPORT

(PCT Article 17(2)(a), Rules 13ter.1(c) and Rule 39)

Applicant's or agent's file reference <b>5053-28201</b>	IMPORTANT DECLARATION	Date of mailing(day/month/year) <b>01/11/2001</b>
International application No. <b>PCT/US 01/ 20030</b>	International filing date(day/month/year) <b>21/06/2001</b>	(Earliest) Priority date(day/month/year) <b>23/06/2000</b>
International Patent Classification (IPC) or both national classification and IPC <b>GO6F17/60</b>		
Applicant <b>COMPUTER SCIENCES CORPORATION</b>		

This International Searching Authority hereby declares, according to Article 17(2)(a), that **no international search report will be established** on the international application for the reasons indicated below

1. ☒ The subject matter of the international application relates to:
  - a. ☐ scientific theories.
  - b. ☐ mathematical theories
  - c. ☐ plant varieties.
  - d. ☐ animal varieties.
  - e. ☐ essentially biological processes for the production of plants and animals, other than microbiological processes and the products of such processes.
  - f. ☒ schemes, rules or methods of doing business.
  - g. ☐ schemes, rules or methods of performing purely mental acts.
  - h. ☐ schemes, rules or methods of playing games.
  - i. ☐ methods for treatment of the human body by surgery or therapy.
  - j. ☐ methods for treatment of the animal body by surgery or therapy.
  - k. ☐ diagnostic methods practised on the human or animal body.
  - l. ☐ mere presentations of information.
  - m. ☐ computer programs for which this International Searching Authority is not equipped to search prior art.
2. ☐ The failure of the following parts of the international application to comply with prescribed requirements prevents a meaningful search from being carried out:
 

☐ the description
 ☐ the claims
 ☐ the drawings
3. ☐ The failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions prevents a meaningful search from being carried out:
 

☐ the written form has not been furnished or does not comply with the standard.
 ☐ the computer readable form has not been furnished or does not comply with the standard.
4. Further comments:

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

**Lucia Van Pinxteren**

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 203

The claims relate to subject matter for which no search is required according to Rule 39 PCT. Given that the claims are formulated in terms of such subject matter or merely specify commonplace features relating to its technological implementation, the search examiner could not establish any technical problem which might potentially have required an inventive step to overcome. Hence it was not possible to carry out a meaningful search into the state of the art (Art. 17(2)(a)(i) and (ii) PCT; see Guidelines Part B Chapter VIII, 1-6).

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.